

Gal & F. F.
NATURAL HISTORY,

GENERAL AND PARTICULAR,

BY THE

COUNT DE BUFFON,

TRANSLATED INTO ENGLISH.

ILLUSTRATED

WITH ABOVE 300 COPPER-PLATES,

AND OCCASIONAL

NOTES AND OBSERVATIONS.

BY WILLIAM SMELLIE,

MEMBER OF THE ANTIQUARIAN AND ROYAL
SOCIETIES OF EDINBURGH.

SECOND EDITION.

V O L. V.

L O N D O N:

Printed for W. STRAHAN and T. CADELL, in the Strand.

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NATURAL

NATURAL HISTORY.

T H E B E A R *.

THERE is no animal so generally known as the bear, concerning which the writers of natural history have differed so much. Their uncertainties, and even contradictions, with regard to the nature and manners of this animal, seem to have proceeded from their not distinguishing properly the different species; and, of course, they sometimes ascribe to one the properties of another. In the first place, the land-bear must be distinguished from the sea-bear, the latter being commonly called the *white-bear*, or

VOL. V. A bear

* The bear has six cutting teeth and two canine in each jaw; five toes before and five behind. In walking, he rests on the hind-feet, as far as the heel; *Pennant's Synops. of quad. p. 190.*

In Greek, *Αρκτος*; in Latin, *Ursus*; in Italian, *Orso*; in Spanish, *Osso*; in German, *Baer*; in Swedish, *Björn*; in Polish, *Wewer*, *Niedzwiedz*; in French, *L'Ours*.

Ursus; *Gesner. quad. p. 941. Icon. quad. p. 65. Ray, Synops. quad. p. 171. Klein. quad. p. 82.*

Ursus niger, cauda unicolore; *Briffon. Regn. anim. p. 258.*

Ursus cauda abrupta; *Linn. syst. p. 69.*

bear of the frozen sea. These two animals are very different, both in the form of their bodies, and in their natural dispositions. The land-bears must again be distinguished into the *brown* and the *black* *; because, having neither the same inclinations, nor the same natural appetites, they cannot be regarded as varieties only of one and the same species. Besides, some land-bears are white, and, though resembling in colour the sea-bear, they differ from it, in every other particular, as much as the other bears. These white land-bears are found in Great Tartary †, in Muscovy, in Lithuania, and in other northern regions. They are not rendered white during winter by the rigour of the climate, like the ermines, or the hares, but are brought forth white, and remain so in all seasons. They ought, therefore, to be considered as a fourth species, if we did not also find bears with their hair consisting of a mixture of brown and white, which indicates an intermediate race between the white land-bear and the brown or black bear; consequently the white land-bear is only a variety of one or other of these species.

The brown bear is very common in the Alps; but the black bear is extremely rare. The latter, on the contrary, abounds in the forests of the northern

* Under the denomination of the Brown Bears, I comprehend those which are brown, yellow, red, or reddish; and under *black*, all the shades of that colour.

† See relation de la Grande Tartarie, p. 8.

northern regions of Europe and America. The brown bear is furious and carnivorous ; but the black bear is only wild, and uniformly refuses to eat flesh. Of this we cannot give a more distinct and recent testimony than that of M. du Pratz, in his history of Louisiana *.

‘ The black bear,’ says he, ‘ appears in Louisiana during the winter ; because the snows which cover the northern countries prevent him from finding sufficient nourishment. He lives upon fruits, acorns, and roots ; but he is peculiarly fond of honey and milk ; and, when he meets with these articles, he will rather die than quit them. Notwithstanding the common prejudice, I affirm, and in this assertion I am supported by all the inhabitants of this province, and of the neighbouring countries, that he is not a carnivorous animal. Though numerous, and often pressed by extreme hunger, they never devour men, nor eat even butcher-meat, when they fall in with it. During the time I lived among the Natches, a severe winter in the northern regions made the bears descend in vast quantities. They were so numerous, that they starved each other, and were very meagre. Famine made them come out of the woods which border on the river. We saw them during the night, run into houses and court-yards, which were not properly shut, where they found meat exposed ; but they never touched it, and eat only what grains they could pick

A 2

up.

* Tom. 2. p. 77.

up. On an occasion so pressing, they must infallibly have discovered their carnivorous disposition, if they had an appetite of this nature. They never kill animals to devour them; and, if they were carnivorous, they would not abandon countries covered with snow, where they could find men and animals at will, in order to search for fruits and roots, a species of food rejected by the carnivorous tribes.' M. du Pratz adds, in a note, that, since writing the above article, he had learned with certainty, that, in the mountains of Savoy, there are two kinds of bears, the one black, like those of Louisiana, and not carnivorous; the other red and equally carnivorous as the wolves. The Baron de Hontan remarks *, that the bears of Canada are very black, but by no means dangerous; and that they never attack men, unless when shot at and wounded. He farther observes †, that the reddish bears are extremely mischievous, and boldly attack the hunters; but that the black bears uniformly fly from men.

Wormius ‡ informs us, that there are three kinds of bears in Norway: The first (*breffdiur*) is very large, not altogether black, but brownish, and not so destructive as the other kinds, living only on herbs and the leaves of trees: The second (*ildgiersduir*) is smaller, blacker, and carnivorous, often attacking horses and other animals, especially

* Tom. 1. p. 86.

† Tom. 2. p. 40.

‡ Mus. Worm. p. 318.

especially in autumn: The third (*myrebiorn*) is still smaller, but fails not to be noxious. He is said to feed upon ants, and delights in overturning their hillocks. It has been remarked, (he adds, without proof), that these three kinds mix, and produce intermediate species; that the carnivorous kind attacks the flocks, kills every creature, like the wolf, and devours only one or two; that, though carnivorous, they eat wild fruits; and, when the fruit of the service-tree abounds, they become more dangerous, because this sour fruit sets their teeth so much on edge, that nothing but blood or grease can remove this malady, which prevents them from eating with ease. But most of these facts related by Wormius appear to be extremely equivocal; for we have no examples of animals, with appetites so uniformly different as those of the two first species, the one living only on herbs and the leaves of trees, and the other on flesh and blood, intermixing and producing intermediate species. Besides, he makes the black bears carnivorous, and the brown frugivorous, which is absolutely repugnant to truth. Add to this, that P. Rzaczynski*, a Polish writer, and M. Klein of Dantzick †, in describing the bears of their country, mention two species only, the black, and the brown or red; and, of the latter, they speak of a larger and lesser kind. They remark, that the black bears are more rare; that the

A 3 brown,

* Auctuar. hist. nat. p. 32.

† De Quadrup. p. 82.

brown, on the contrary, are very common; that the black bears are the largest, and feed upon ants; and, lastly, that the red or brown kind are the most carnivorous and destructive. These proofs, added to those of M. du Pratz and of the Baron de la Hontan, are perfectly opposite to what Wormius advances. In a word, it appears to be certain, that the red or brown bears, which are found not only in Savoy, but in the high mountains, in the vast forests, and in almost every desert of the earth, devour live animals, and even the most putrid carcases. The black bears inhabit not very cold countries, but we find the brown or red bears in the frozen, the temperate, and even in the southern regions. They were common in Greece; and the Romans brought them from Lybia*, to be exhibited at their public spectacles. They are found in China†, in Japan‡, in Arabia, in Egypt, and as far as the island of Java§. Aristotle¶ likewise mentions white land-bears, and considers this difference of colour as accidental, and proceeding from a defect in generation. Thus bears are found in all desert, rude, and woody countries. But they never

* Herodot. Solon. Crinit. et alii. Quod fraeno Lybici domantur urfi, says *Martial*.

† Hist. generale des voyages, par M. l'Abbé Prevost, tom. 3. p. 492. Hist. nat. du Japan, par Koempfer, tom. 1. p. 109.

‡ Strabo, lib. 16. Prosp. Alpin. p. 233.

§ Voyage autour du monde de le Gentil, tom. 3. p. 85.

¶ Aristot. de admir. cap. 140. Idem de gen. anim. lib. 5. cap. 6.

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never appear in populous nations, nor in open and cultivated regions. There are none in France or in Britain, except, perhaps, a few in the most unfrequented mountains of France.

The bear is not only a savage, but a solitary animal. He flies from all society, avoiding every place to which man can have access, and is only easy where Nature appears in her rudest and most ancient form. An old cavern among inaccessible rocks, or a grotto formed by time in the trunk of a decayed tree, in the midst of a thick forest, serve him for an habitation. Thither he retires alone, and passes part of the winter without provisions, and goes not out of it for several weeks. However, he is neither torpid, nor deprived of feeling, like the dormouse and marmot; but, as he is excessively fat about the end of autumn, which is the time he retires, this abundance of grease enables him to endure abstinence; and he departs not from his den till he is almost famished. It is alledged, that the males leave not their retreats for forty days*; but that the females continue four months, because it is there that they bring forth their young. It is difficult to believe that they should not only subsist, but nourish their young, without taking food for so long a period. I allow, that, when pregnant, they are prodigiously fat, and that, being clothed with very thick hair, sleeping the greatest part of the time, and remaining without motion, they must

* Aristot. hist. anim. lib. 8. cap. 17.

8 T H E B E A R.

lose little by perspiration. But, if it be true, that the males, pressed with hunger, go out in forty days, it is not natural to think, that the females, after bringing forth and suckling their young, should feel less the want of food, unless we suppose them to devour some of their offspring, together with the membranes, &c. which is not probable, notwithstanding the example of the cats, which sometimes eat their young. Besides, I am here talking of the brown species only, the males of which devour the new-born cubs, when they discover them in their dens. The females, on the contrary, seem to love their offspring with an astonishing ardour; After they bring forth, they are more ferocious and more dangerous than the males. They fight, and expose themselves to every peril, in order to save their young, who are not unformed for some time after birth, as the ancients alledged, but grow nearly as quick as other animals. They are perfectly formed in the womb of the mother*; and, if the foetus, or young cub, seems, at the first glance, to be ill-formed, it is only because the old bear herself, upon the whole, is an animal gross and disproportioned; and we know, that, in every species, the foetus, or new-born animal, is more disproportioned than the adult.

Autumn,

* In museo illust. senatus Bononienfis urfulum a caeco matris utero extractum, et omnibus suis partibus formatum, in vase vitreo adhuc servamus; *Aldrov. de quadrup. p. 120.*

Autumn, with the bears, is the season of love : The female is said to be more ardent than the male. It is alledged, that she lies on her back to receive him, that she embraces him closely, and keeps him fast for a long time, &c. It is certain, however, that they copulate like other quadrupeds. Captive bears have been seen coupling, and have been impregnated. But how long the females go with young, has not been so accurately marked as could be wished. Aristotle * has said, that they go with young 30 days only. As nobody has contradicted this fact, and as we are not in a condition to verify it, we, of course, can neither affirm nor deny with regard to this matter. We shall only remark, that it appears to be doubtful : 1. Because the bear is a large animal ; and, in proportion to the size of animals, they require the longer time to be formed in the womb : 2. Because the young bears grow very slowly ; they follow their mother, and require her assistance, for a year or two : 3. Because the female produces but one, two, three, four, and never more than five ; a property common to all large animals, who produce but a few young, and carry them long : 4. Because the bear lives 20 or 25 years, and the time of gestation and that of growth are generally proportioned to the duration of life. From these analogies, I am inclined to believe that the bear goes with young at least several months. However this matter stands, the

* Arist. hist. animal. lib. 6. cap. 30.

the mother takes the greatest care of her young. She prepares for them a bed of moss and herbs in the bottom of her cavern, and suckles them till they are able to go abroad with her. She brings forth in winter, and the cubs begin to follow her in the spring. The male and female live not together; but each has a separate and a distant retreat. When they cannot find a cavern for a den, to make a lodging, they break and collect branches of trees, which they so cover with herbs and leaves as to render them impenetrable by water.

The voice of the bear is a deep murmuring, often accompanied with a grinding of the teeth, especially when irritated. He is very susceptible of anger, which is always furious, and often capricious. Though, when tamed, he appears mild and even obedient to his master, he should always be treated with diffidence and circumspection; and we should be particularly careful not to strike him on the nose, or on the parts of generation. He may be taught to walk on end, to dance, and to perform various gesticulations. He seems even to listen to music, and to observe some kind of measure. But, to give him this species of education, he must be taken young, and constrained during life. An old bear cannot be tamed, nor will he suffer restraint. He is naturally intrepid, or, at least, indifferent to danger. The wild bear never turns out of his road, nor flies from the aspect of man. It is alledged, however,

ever, that the sound of a whistle * surprises and confounds him to such a degree, that he rises on his hind feet. This is the time for shooting, and endeavouring to kill him; for, if he be only wounded, he attacks the huntsman with fury, embraces him with his fore-feet, and suffocates him †, if not timely assisted.

Bears are hunted in different manners. In Sweden, Norway, Poland, &c. the least dangerous mode, it is said ‡, is to intoxicate them by throwing ardent spirits on honey, of which they are fond, and search for it in the trunks of trees. In Louisiana and Canada, where the black bears are common, and where they live not in caverns, but in decayed trees, they are taken by setting their habitations on fire §. As they climb trees with ease, they seldom reside on a level with the ground, and their habitations are often 30 or 40 feet high. If it be a mother with her young, she descends first, and is slain before she reaches the ground. The cubs follow, are seized by throwing a rope round their necks, and carried off either for the purposes of training or eating them; for the flesh of the cubs is delicate and good: That of the adult is eatable; but, as it is mixed with an oily fat, the paws alone, which are more compact, are reckoned a delicate dish.

The

* Voyages de Regnard, tom. 1. p. 37.

† Id. ibid. Hist. de la Louisiane par M. du Pratz, tom. 2. p. 81.

‡ Voyages de Regnard, tom. 1. p. 53.

§ Mem. sur la Louisiane par M. Dumont, p. 75. Hist. de la Louisiane, par M. du Pratz, tom. 2. p. 87.

The hunting of the bear, without being very dangerous, is extremely lucrative, when performed with success. The skin is a valuable fur, and the quantity of oil drawn from a single bear is considerable. The flesh and fat are boiled together in a caldron, and the oil is easily separated. "Afterwards," says M. du Pratz, "the oil is purified, by throwing it, when very warm, into a quantity of salt and water. A detonation ensues, and a thick smoke rises, which carries off the disagreeable odour of the grease. When the smoke ceases, and while the grease is still warm, it is put into a pot, where it is allowed to remain for eight or ten days. At the end of this period, a clear oil is seen swimming on the top, which is taken off with a laddle. This oil is equally good, and answers the same purposes, as the best olive oil. Beneath, we find a lard as white, but a little softer than hog's-lard. It serves for culinary purposes, and has no bad taste or smell." M. Dumont, in his Memoirs of Louisiana, agrees with M. du Pratz, and adds, that, from a single bear, they obtain more than 120 pots of this oil; that the savages traffick in this article with the French; that it is very wholesome and good; that it never congeals but during great colds, and, when this happens, it is all clotted and of a dazzling whiteness; and that then it is eaten upon bread, like butter. Our druggists keep no bear's grease, but import, from Savoy, Switzerland, or Canada, axungium, which is by no means pure. The au-

thor

thor of the Dictionary of Commerce affirms, that good bear's greese should be grayish, viscid, and of a disagreeable odour; and that, when too white, it is sophisticated and mixed with suet. It is applied topically in hernias, rheumatism, &c. and many persons assure us, that they have felt its good effects.

The amazing fatness of the bear makes him light for swimming; and, accordingly, he traverses, with ease, rivers and lakes. "The bears of Louisiana," says Dumont *, "which are of a fine black colour, cross the river, notwithstanding its great breadth. They are remarkably fond of the fruit of the *plaqueminier*, *guacana* †, or date plumb-tree: They climb these trees, sit astride upon a branch, keep themselves, firm with one hand, and collect the fruit with the other. They frequently come from the woods into the cultivated fields to eat potatoes and yams." In autumn, they are so fat, that they can hardly walk ‡, or, at least, they cannot run so quick as a man ||. Upon the sides and thighs they have sometimes ten inches thick of fat §. The soles of their feet are gross and inflated. When wounded, there issues out a white lacteous juice. This part appears to be composed of small

* Mem. sur la Louisiane, p. 76.

† For an account of this tree, see Dict. raisonné d'Hist. nat. par Bomarc.

‡ Voyage du Baron de la Hontan, p. 86.

|| Hist. de la Louisiane par M. du Pratz, p. 83.

§ Extrait d'un ouvrage Danois cité par Mrs Arnauld de Nobleville et Salerne; *Hist. nat. des animaux*, tom. 6. p. 374.

small glands, like *papillae*; and it is for this reason, that these animals, during their winter retreat, continually suck their paws.

The bear enjoys, in an excellent degree, the senses of seeing, hearing, and touching, though his eye is proportionally small, his ears short, and his skin thick and covered with bushy hair. His sense of smelling is, perhaps, more exquisite than that of any other animal; for the internal surface of this organ is very much extended, having four rows * of bony plates, separated from each other by three perpendicular planes, which increase prodigiously the surfaces proper for the reception of impressions from odoriferous bodies. He has fleshy legs and arms, like those of a man, a short heel-bone, which forms a part of the sole of the foot, five metatarsal bones opposed to the heel in the hind-feet, and an equal number of metacarpal bones in the fore-feet. But the thumb is not separated, and the largest finger is on the outside of this species of hand; whereas, in man, it is on the inside. His toes are thick, short, and locked to each other, both in the hands and feet. His nails are black, and of a hard homogeneous substance. But these gross resemblances to man render the bear only more deformed, and give him no superiority over the other animals.

SUPPLEMENT.

* Etienne Lorentinus, *Ephem. d'Allem. decur. 1. an. 9. et 10. p. 403.* cité par Mrs Arnauld de Nobleville et Salerne; *Hist. nat. des animaux, tom. 6. p. 366.*

S U P P L E M E N T.

M. de Musly, major of artillery in the service of the States General, has communicated some notices concerning domestic bears, of which the following is an extract.

“At Berne, where these animals are nourished,” says M. de Musly, “they are kept in large square ditches, where they have room to walk about. These ditches are covered above, and lined with stone, both at the bottom and on the sides. Their lodges or cabbins are likewise paved on a level with the bottom of the ditch, divided into two by walls, and may be shut both internally and externally by iron gates. In the middle of these ditches, there are large holes in the pavement, where considerable trees may be set up on end. There is likewise, in each ditch, a trough full of fresh water.

“Two young brown bears were transported here from Savoy, thirty-one years ago, of which the female is still alive; the male was killed about two months ago, by a fall from one of the high trees planted in the ditch. They began to generate at the age of five years: Since that time, they have every year come in season during the month of June; and the female has always brought forth in the beginning of January. The
first

first time she produced one cub only, and afterwards, sometimes one, sometimes two, and sometimes three, but never more; and the three last years she brought forth one only at each time. The man who takes care of her, thinks her still pregnant (October 17. 1771.) When the young come into the world, their figure is pretty; their colour is yellow, but white round the neck; and they have not the least appearance of bears. The mother is extremely fond of them. Their eyes are shut during four weeks. At first they exceed not eight inches in length; and three months after, they measure 14 or 15 inches from the end of the muzzle to the root of the tail; and their hair is nearly an inch long. Their figure is then almost round, and the muzzle is very sharp pointed; so that a person would hardly know them. They afterwards become weak and tender till they acquire their full growth; the white colour is gradually effaced, and the yellow changes into brown.

During the act of copulation, the male commences with short, but brisk movements, which last about a quarter of a minute; he then reposes double that time upon the female, without disengaging himself: In this manner he proceeds for three or four times; and when the operation is finished, the male bathes himself in the trough up to the neck. They sometimes fight cruelly, making a horrible grumbling noise. But, in the season

season of love, the female has generally the advantage, because the male, at that time, spares her. The ditches, which formerly were in the town, are now filled up, and others are made between the ramparts and the old walls. These two bears, having been separated some hours when removing into the new ditches, raised themselves on end when they again met, and embraced each other with transport. After the death of the male, the female appeared to be much afflicted, and refused every kind of nourishment for several days. But, unless these animals be brought up and fed together from their earliest youth, they cannot endure one another; and, after being accustomed to this kind of society, the survivor will not admit another mate.

“The trees put yearly into the ditches in the month of May, are green larches, in climbing upon which the bears take vast delight. They are fed with rye-bread, which is cut into large morsels, and steeped in warm water. They likewise eat all sorts of fruits; and, when any unripe fruits are brought to the market, they are thrown in to the bears by order of the magistrate. It has been remarked, however, that some bears prefer pulse to the fruits of trees. When the female is about to bring forth, they give her plenty of straw, of which she makes a rampart. After this, the male is removed, lest he should eat the cubs; and, when she has littered, she is fed

with a more nourishing diet than usual. We never could perceive any part of the membranes or after-birth, which makes it probable that she eat them. The cubs are allowed to remain with her for ten weeks; and are afterwards separated, and fed, for some time, with milk and biscuit.

“The bear which we believed to be in a state of pregnancy, was furnished, about the common time, with straw, of which she made a bed, and rested on it during three weeks, without producing any thing. She brought forth, for the last time, at the age of 31, in the month of January 1771; but, though she received the male in the following June, it was ineffectual in January 1772. It were to be wished that she was allowed to live, in order to discover the term fixed by Nature for the duration of these animals.

“There are brown bears on Mount Jura, upon the frontiers of our canton, in Franche-compté, and in the country of Gex. When they descend into the plains in autumn, they repair to the chestnut woods, where they make great havoc. In this country, the bears are said to have weak eyes, but acute senses of hearing, touching, and smelling.”

The bears of Norway are more common in the provinces of Bergen and Drontheim, than in the other districts of that country. Two races of them are remarked, of which the one is considerably smaller than the other. In the colours of
both,

both, there are great varieties. Some of them are of a deep brown, others of a shining brown; and some are gray, and of every shade of white. At the beginning of October, they retire into the dens they prepare for themselves, and where they make a kind of bed composed of moss and leaves of trees. As these animals are very formidable, especially when wounded, there are seldom less than three or four hunters in company; and, as the bear easily kills large dogs, they employ only small dogs, who pass under his belly, and seize him by the genitals. When he finds himself overpowered, he leans his back against a rock or a tree, collects turf and stones, which he throws at his enemies; and it is generally in this situation that he receives the finishing blow*.

We have seen at the menagery of Chantilly an American bear, of a fine black colour, and having soft, straight, long hair. We remarked other differences in the figure of this American bear, compared with that of Europe, as in the head, which is somewhat longer, because the muzzle is not so flat as that of the European bear.

In the relation of M. de Bertram's expedition, we have a notice of an American bear, killed near St John's river, in East Florida, in the following terms:

B 2

" This

* Pontoppidan's natural history of Norway.

"This bear," according to the relation, "weighed only 400 pounds, though the length of its body was seven feet, from the extremity of the nose to the tail. The fore-feet were only five inches broad, and the thickness of the fat was four inches. We drew from this animal 60 Paris pints of oil *."

THE

* Letter of Mr Collinson to M. de Buffon, dated London, February 6. 1767.

Plate CIII.



A. Bell's sculp.

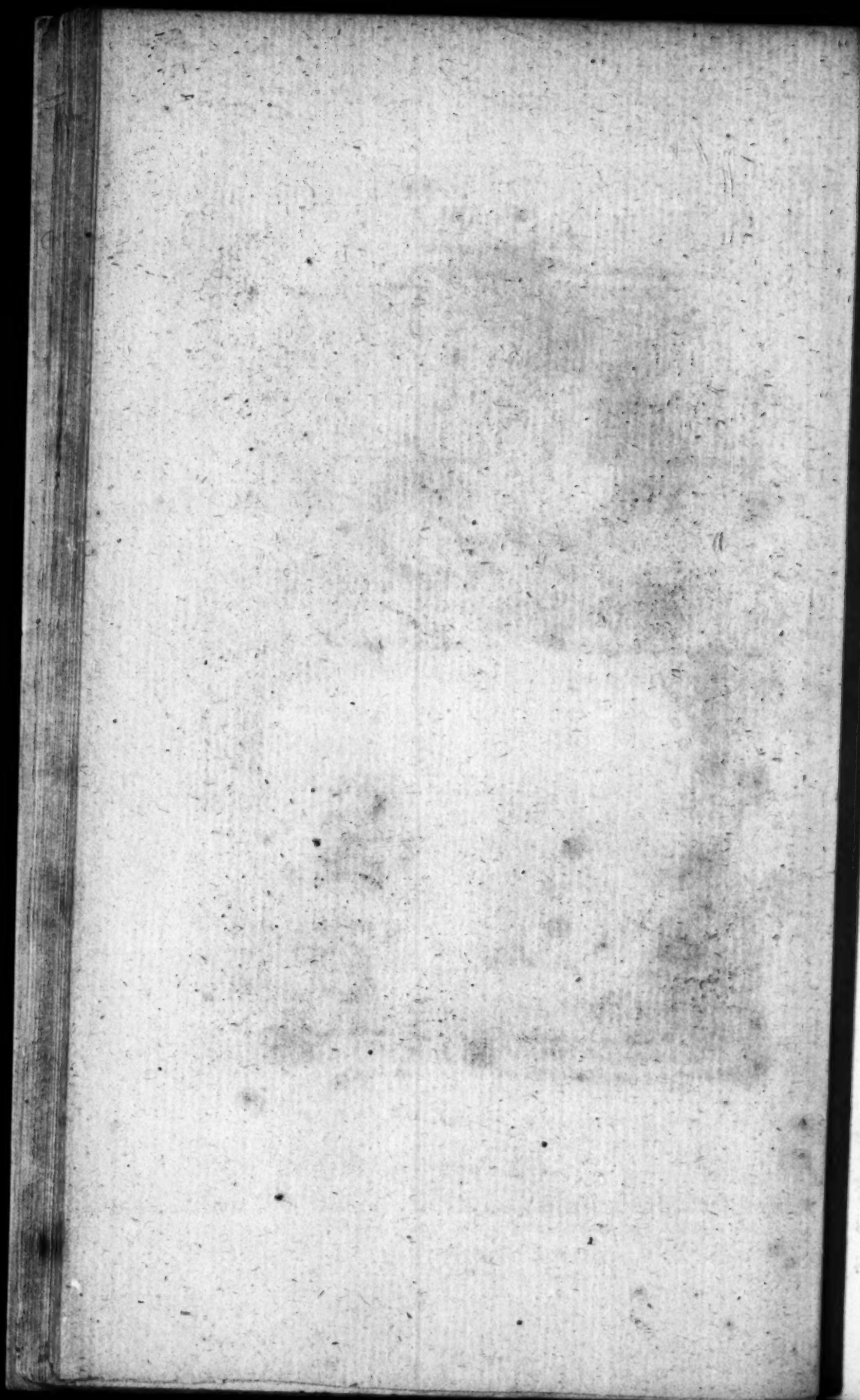
BEAR.

Plate CIV.



A. Bell's sculp.

WHITE BEAR.



THE BEAVER*.

IN proportion as man rises above a state of nature, the other animals sink below that standard: Reduced to slavery, or treated as rebels, and dispersed by force, their societies have vanished, their industry and genius have become barren, their arts have disappeared, each species has lost its general qualities, and the whole have preserved only their individual properties, matured, in some, by example, by imitation, and by instruction; and, in others, by fear, and by the necessity of perpetually watching over their own safety. What views, what designs can be

B 3

possessed

* The beaver has two cutting teeth in each jaw, five toes on each foot, and a tail compressed, and covered with scales. He has strong cutting teeth, short ears hid in the fur, a blunt nose, hair of a deep chestnut brown, a broad, almost oval, tail, compressed horizontally, and with scales; the fore-feet are small, and the hind feet large; the length, from nose to tail, is about three feet; and the tail is eleven inches long, and three broad; *Pennant's synops. of quad.*

In Greek, *καριος*; in Italian, *Bivaro*, *Bevero*; in Spanish, *Bevaro*; in German, *Biber*; in Swedish, *Baefwer*; in Polish, *Bobr*; in French, *Le Castor*, or *Le Bièvre*.

Castor; *Gesner, Hist. quad. p. 309. Icon. quad. p. 84.*

Castor five fiber; *Ray, Synops. quad. p. 209. Klein. quad. p. 91.*

Castor castanei coloris, cauda horizontaliter plana; *Briffon, Regu. anim. p. 133.*

Castor fiber, cauda ovata plana; *Linn. Syst. p. 78.*

possessed by slaves without spirit, or exiles without power? Compelled to fly, and to exist in solitude, they can attain to no improvement; they can neither acquire nor transmit knowledge, but must continually languish in calamity, and decay; they must perpetuate without multiplying; and, in a word, they must lose by their duration more than they acquire by experience.

It is for this reason that there are now no remains of that astonishing industry of animals, except in those distant and desert regions where, for a long succession of ages, they have received no disturbance from man, where each species can display with freedom its natural talents, and mature them in quiet, by uniting into permanent societies. The beavers afford, perhaps, the only subsisting monument of the ancient intelligence of brutes, which, though infinitely inferior in principle to the human intellect, supposes common projects and relative views; projects which, having society for their basis, and, for their object, a dike to construct, a town to build, or a republic to found, imply some mode of making themselves understood, and the capacity of acting in concert.

The beavers are said to be, among quadrupeds, what the bees are among the insect tribes. There are in Nature, as she now appears, three species of societies, which must be examined before we can compare them: The free society of man, from which, next to God, he derives all his power;

power ; the constrained society of the larger animals, which always flies before that of man ; and the necessary society of certain small creatures, which, being all produced at the same time, and in the same place, are obliged to live together. An individual, solitary as he comes from the hand of Nature, is a sterile being, whose industry is limited to the simple use of his senses. Even man himself, in a state of pure nature, deprived of the light and assistance of society, neither multiplies nor constructs. Fertility, on the contrary, is the necessary result of every society, however blind or fortuitous, provided it be composed of creatures of the same nature. From the necessity alone of desiring to approach or to avoid each other, common movements arise, from which there often results a work, that has the air of being concerted, managed, and executed with intelligence. Thus the works of bees, each of whom, in a given place, such as a hive, or the hollow of an old tree, builds a cell ; the works of the Cayenne bee, or fly, which not only makes the cells, but the hive that is to contain them, are operations purely mechanical, and imply no intelligence, no concerted project, no general views ; they are labours which, being the produce of a physical necessity, a result of common movements *, are at all times, and in all places, uniformly executed in the same manner, by a multitude, not assembled from choice, but united by the force of nature.

Hence,

* See above, vol. III. Dissertation on the nature of animals.

Hence, it is not society, but numbers alone, which operate here. It is a blind power, never to be compared to that light by which all society is directed. I speak not of that pure light, that ray of divinity, which has been imparted to man alone. Of this the beavers, as well as all the other animals, are most assuredly deprived. But their society, not being a union of constraint, but proceeding from a species of choice, and supposing, at least, a general concert and common views in its members, implies likewise a certain degree of intelligence, which, though different in principle from that of man, produces effects so similar as to admit of comparison, not, indeed, to the luminous society of polished nations, but to the rudiments of it, as they appear among savages, whose union and operations can alone, with propriety, be compared to those of certain animals.

Let us, then, examine the product of each of these associations; let us see how far the art of the beaver extends, and to what the talents of the savage is limited. To break a branch, and to make a staff of it, to build a hut, and to cover it with leaves, for shelter, to collect hay or moss, and to make a bed of these materials, are operations common to the animal and to the savage. The beavers build huts, the monkeys carry staves, and several other animals make commodious and neat houses, which are impenetrable to water. To sharpen a stone by friction, and make a hatchet of it, to use this hatchet for cutting

ting or peeling the bark off trees, for pointing arrows, for hollowing a vessel, or for slaying an animal in order to clothe themselves with its skin, to make bow-strings of its sinews, to fix the sinews to a hard thorn or bone, and to use these for needles and thread, are actions purely individual, which man in solitude may perform without the aid of others; actions which depend solely on conformation, because they suppose nothing but the use of the hand. But, to cut and transport a large tree, to build a village, or to conduct a large canoe, are operations, on the contrary, which necessarily suppose common labour and concerted views. These works are the result of infant society in savage nations; but the operations of the beavers are the fruits of society already matured among these animals; for it must be remarked, that they never think of building, but in countries where they are perfectly free and undisturbed. There are beavers in Languedoc, and in the islands of the Rhone; and they abound in many of the northern provinces of Europe. But, as all these countries are inhabited, or, at least, frequented by men, the beavers there, like all the other animals, are dispersed, solitary, fugitive, and timid creatures. They have never been known to unite, or to construct any common work. But, in desert regions, where men in society were long of arriving, and where some vestiges only of savages could be traced, the beavers have every where united, formed
affoci-

associations, and constructed works which continue to excite admiration. Of this I shall endeavour to quote the most judicious and irreproachable authorities, and shall hold as certain only those facts concerning which authors agree. Less inclined, perhaps, than some of them, to indulge admiration, I shall venture to doubt, and even to criticise, every article that appears too hard to be credited.

It is universally allowed, that the beaver, in his purely individual qualities, instead of possessing any marked superiority over the other animals, appears, on the contrary, to sink considerably below some of them: And I am enabled to confirm this fact, being possessed of a young beaver, sent me from Canada*, which I have kept alive near twelve months. This animal is very gentle, peaceable, and familiar. It is somewhat melancholy, and even plaintive; but has no violence or vehemence in its passions. Its movements are slow, and its efforts feeble; yet it is seriously occupied with a desire of liberty, gnawing, from time to time, the gates of its prison, but without fury or precipitation, and with the sole view of making an opening for its escape. In other matters, it seems to be extremely indifferent, forming no attachments†, and neither wishes to hurt nor

* This beaver was taken when very young, and transmitted to me, in the beginning of the year 1758, by M. de Montbelliard, a captain of the Royal Artillery.

† We are told, however, by M. Klein, that he fed a beaver during

to please. In these relative qualities, which would make him approach to man, he seems to be inferior to the dog. He appears to be formed neither for serving, commanding, nor even holding commerce with any other species than his own. His sense, locked up in his own person, never entirely manifests itself but among his own tribe. When alone, he has little personal industry, less artifice, and hardly prudence enough to avoid the grossest snares. Instead of attacking other animals, he is very awkward in defending himself. He prefers flight to combat, though he bites cruelly when he finds himself seized by the hand of the hunter.

If, then, we consider this animal in a state of nature, or rather in a state of solitude and dispersion, he appears not, by his internal qualities, to rise above the other animals. He has not the genius of a dog, the sense of an elephant, the craftiness of the fox, &c. but is more remarkable for some singularities of external conformation, than for any apparent superiority of mental faculties. He is the only quadruped furnished with a flat, oval tail, covered with scales, which he uses as a rudder to direct his course in the water; the only animal that has his hind-feet webbed, and the toes of his fore-feet, which he employs for carrying victuals to his mouth, separate from each other; the only quadruped that resembles

during several years, and that it followed, and went in quest of him, as dogs search for their masters.

resembles the land-animals in the anterior parts of his body, and the aquatic animals in the posterior. He forms the link between quadrupeds and fishes, as the bat does between quadrupeds and birds. But these peculiarities would be rather defects than perfections, if the beaver knew not how to derive, from this singular conformation, advantages which render him superior to every other quadruped.

The beavers begin to assemble in the month of June or July, for the purpose of uniting into society. They arrive in numbers, from all corners, and soon form a troop of two or three hundred. The place of rendezvous is generally the situation fixed for their establishment, and is always on the banks of waters. If the waters be flat, and never rise above their ordinary level, as in lakes, the beavers make no bank or dam. But, in rivers or brooks, where the waters are subject to risings and fallings, they build a bank, and, by this artifice, they form a pond or piece of water which remains always at the same height. The bank traverses the river, from one side to the other, like a sluice, and it is often from 80 to 100 feet long, by 10 or 12 broad at the base. This pile, for animals of a size so small, appears to be enormous, and supposes an incredible labour*. But the solidity with which the work is constructed,

* The largest beavers weigh 50 or 60 pounds, and exceed not three feet in length, from the end of the muzzle to the origin of the tail.

ted, is still more astonishing than its magnitude. The part of the river where they erect this bank is generally shallow. If they find on the margin a large tree, which can be made to fall into the water, they begin with cutting it down, to form the principal part of their work. This tree is often thicker than the body of a man. By gnawing the foot of the tree with their four cutting teeth, they accomplish their purpose in a very short time, and always make the tree fall across the river. They next cut the branches from the trunk, to make it lie level. These operations are performed by the whole community. Several beavers are employed in gnawing the foot of the tree, and others in lopping off the branches after it has fallen. Others, at the same time, traverse the banks of the river, and cut down smaller trees, from the size of a man's leg to that of his thigh. These they dress, and cut to a certain length, to make stakes of them, and first drag them by land to the margin of the river, and then by water to the place where the building is carrying on. These piles they sink down, and interweave the branches with the larger stakes. This operation implies the surmounting of many difficulties; for, to dress these stakes, and to put them in a situation nearly perpendicular, some of the beavers must elevate, with their teeth, the thick ends against the margin of the river, or against the cross-tree, while others plunge to the bottom, and dig holes with their fore-feet, to receive the points, that

that they may stand on end. When some are labouring in this manner, others bring earth, which they plash with their feet, and beat firm with their tails. They carry the earth in their mouths, and with their fore-feet, and transport it in such quantities, that they fill with it all the intervals between the piles. These piles consist of several rows of stakes, of equal height, all placed opposite to each other, and extend from one bank of the river to the other. The stakes facing the under part of the river, are placed perpendicularly; but the rest of the work slopes upwards to sustain the pressure of the fluid; so that the bank, which is 10 or 12 feet wide at the base, is reduced to two or three at the top. It has, therefore, not only all the necessary thickness and solidity, but the most advantageous form for supporting the weight of the water, for preventing its issue, and to repel its efforts. Near the top, or thinnest part of the bank, they make two or three sloping holes, to allow the surface-water to escape, and these they enlarge or contract, according as the river rises or falls; and, when any breaches are made in the bank by sudden or violent inundations, they know how to repair them as soon as the water subsides.

It would be superfluous, after this account of their public work, to give a detail of their particular operations, were it not necessary in a history of these animals, to mention every fact, and were not the first great structure made with a view

view to render their smaller habitations more commodious. These cabins or houses are built upon piles near the margin of the pond, and have two openings, the one for going to the land, and the other for throwing themselves into the water. The form of the edifices is either oval or round, some of them larger and some less, varying from four or five, to eight or ten feet diameter. Some of them consist of three or four stories; and their walls are about two feet thick, raised perpendicularly upon planks, or plain stakes; which serve both for foundations and floors to their houses. When they consist but of one story, the walls rise perpendicularly a few feet only, afterwards assume a curved form, and terminate in a dome or vault, which serves them for a roof. They are built with amazing solidity, and neatly plastered both without and within. They are impenetrable to rain, and resist the most impetuous winds. The partitions are covered with a kind of stucco, as nicely plastered as if it had been executed by the hand of man. In the application of this mortar, their tails serve for trowels, and their feet for plashing. They employ different materials, as wood, stone, and a kind of sandy earth, which is not subject to be dissolved in water. The wood they use is almost all of the light and tender kinds, as alders, poplars, and willows, which generally grow on the banks of rivers, and are more easily barked, cut, and transported, than the heavier and more solid species of timber. When they

they once attack a tree, they never abandon it till they cut it down, and carry it off. They always begin the operation of cutting at a foot or a foot and a half above the ground: They labour in a sitting posture; and, beside the convenience of this situation, they enjoy the pleasure of gnawing perpetually the bark and wood, which are most palatable to their taste; for they prefer fresh bark and tender wood to most of their ordinary aliment. Of these provisions they lay up ample stores, to support them during the winter*; but they are not fond of dry wood. It is in the water, and near their habitations, that they establish their magazines. Each cabin has its own magazine, proportioned to the number of its inhabitants, who have all a common right to the store, and never pillage their neighbours. Some villages are composed of twenty or twenty-five cabins. But these large establishments are rare; and the common republic seldom exceeds ten or twelve families, of which each has his own quarter of the village, his own magazine, and his separate habitation. They allow not strangers to set down in their neighbourhood. The smallest cabins contains two, four, or six; and the largest eighteen,

* The provision for eight or ten beavers, is twenty-five or thirty feet in length, by eight or ten feet in thickness. They transport not into their cabins wood or bark, till cut into thin slices, and just prepared for eating. They love fresh wood better than what has been floated, and go out, from time to time, during the winter, to eat fresh provisions in the forests; *Mem. de l'Acad. ann. 1704.*

eighteen, twenty, and, it is alledged, sometimes thirty beavers. They are almost always equally paired, being the same number of females as of males. Thus, upon a moderate computation, the society is often composed of 150 or 200, who all, at first, laboured jointly, in raising the great public building, and afterwards in select tribes or companies, in making particular habitations. In this society, however numerous, an universal peace is maintained. Their union is cemented by common labours; and it is rendered perpetual by mutual convenience, and the abundance of provisions which they amass and consume together. Moderate appetites, a simple taste, an aversion to blood and carnage, deprive them of the idea of rapine and war. They enjoy every possible good, while man knows only how to pant after happiness. Friends to each other, if they have some foreign enemies, they know how to avoid them. When danger approaches, they advertise one another, by striking their tail on the surface of the water, the noise of which is heard at a great distance, and resounds through all the vaults of their habitations. Each takes his part; some plunge into the lake, others conceal themselves within their walls, which can be penetrated only by the fire of heaven, or the steel of man, and which no animal will attempt either to open or to overturn. These retreats are not only very safe, but neat and commodious. The floors are spread over with verdure: The branches of the box and the

fir serve them for carpets, upon which they permit not the smallest dirtiness. The window that faces the water answers for a balcony to receive the fresh air, and to bathe. During the greatest part of the day, they sit on end, with their head and anterior parts of the body elevated, and their posterior parts sunk in the water. This window is made with caution, the aperture of which is sufficiently raised to prevent its being stopped up with the ice, which, in the beaver climates, is often two or three feet thick. When this happens, they slope the sole of the window, cut obliquely the stakes which support it, and thus open a communication with the unfrozen water. This element is so necessary, or rather so agreeable to them, that they can seldom dispense with it. They often swim a long way under the ice: It is then that they are most easily taken, by attacking the cabin on one hand, and, at the same time, watching at a hole made at some distance, where they are obliged to repair for the purposes of respiration. The continual habit of keeping their tail and posterior parts in the water, appears to have changed the nature of their flesh. That of their anterior parts, as far as the reins, has the taste and consistence of the flesh of land or air animals; but that of the tail and posteriors has the odour and all the other qualities of fish. The tail, which is a foot long, an inch thick, and five or six inches broad, is even an extremity or genuine portion of a fish attached to the body of a quadruped: It is entirely covered with scales, and

and with a skin perfectly similar to that of large fishes. The scales may be scraped off with a knife, and, after falling, they leave an impression on the skin, which is the case with all fishes.

It is in the beginning of summer that the beavers assemble. They employ the months of July and August in the construction of their bank and cabins. They collect, in September, their provisions of bark and wood: Afterwards they enjoy the fruits of their labours, and taste the sweets of domestic happiness. This is the time of repose, and the season of love. Knowing and loving one another from habit, from the pleasures and fatigues of a common labour, each couple join not by chance, nor by the pressing necessities of nature, but unite from choice and from taste. They pass together the autumn and the winter: Perfectly satisfied with each other, they never separate. At ease in their cabins, they go not out but upon agreeable or useful excursions, to bring in supplies of fresh bark, which they prefer to what is too dry or too much moistened with water. The females are said to continue pregnant four months; they bring forth in the end of winter, and generally produce two or three at a time. About this period they are left by the males, who retire to the country to enjoy the pleasures and the fruits of the spring. They return, occasionally, to their cabins; but dwell there no more. The mothers continue in the cabins, and are occupied in nursing, protecting, and rearing their

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young,

young, which, at the end of a few weeks, are in a condition to follow their dams. The females, in their turn, make little excursions to recruit themselves by the air, by eating fishes, crabs, and fresh bark, and, in this manner, pass the summer upon the waters, and in the woods. They assemble not again till autumn, unless their banks or cabins be overturned by inundations; for, when accidents of this kind happen, they suddenly collect their forces, in order to repair the breaches which have been made.

Some places they prefer to others for their habitation, and they have been observed, after having their labours frequently destroyed, to return every summer to repair them, till, being fatigued with this persecution, and weakened by the loss of several of their numbers, they took the resolution of changing their abode, and of retiring to solitudes still more profound. It is in winter that they are chiefly sought by the hunters; because their fur is not perfectly found in any other season: And, after their village is ruined, and numbers of them are taken, the society is sometimes too much reduced to admit of a fresh establishment; but those which escape death or captivity disperse and become vagabond. Their genius, withered by fear, never again expands. They hide themselves, and their talents, in holes; or, sunk to the condition of other animals, they lead a timid and a solitary life. Occupied only by pressing wants, and exerting solely their individual

dual powers, they lose for ever those social qualities which we have been so justly admiring.

However marvellous the society and the operations I have now described may appear, it is impossible to doubt of their reality. All the facts mentioned by numbers of eye-witnesses * correspond with those I have related: And, if my narration differ from some which have been given, it is only in a few points that I judged too marvellous and improbable to be credited. Authors have not limited themselves to the social manners of the beavers, and to their evident talents for architecture, but have ascribed to them general ideas of police and of government. They have affirmed, that, after the beavers have esta-

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blished

* See concerning the history of the beavers, *Olaius Magnus* dans sa description des pays septentrionaux; les voyages du Baron de la Hontan, *tom. II. p. 155. & suiv. Museum Wormianum*, p. 320.; l'histoire de l'Amérique septentrionale par Bacqueville de la Poterie, *Rouen, 1722, tome I. p. 133.*; Mémoire sur le castor, par M. Sarrafin, inséré dans les Mémoires de l'Académie des Sciences, *année 1704*; la relation d'un voyage en Acadie, par Dierville, *Rouen, 1708, p. 126. & suiv.* les nouvelles découvertes dans l'Amérique septentrionale, *Paris, 1697, p. 133.*; l'Histoire de la Nouvelle-France, par le P. Charlevoix, *Paris 1744, tome II. p. 98. & suiv.* le voyage de Robert Lade, traduit de l'Anglois par M. l'abbé Prevost, *tome II. p. 226.*; le grand voyage au pays des Hurons, par Sagard Theodat, *Paris, 1632, p. 319. & suiv.* le voyage à la Baie de Hudson, par Ellis, *Paris, 1749, tome II. p. 61. & 62.* Voyez aussi Gesner, Aldrovande, Johnston, Klein, &c. à l'article du Castor; le traité du castor par *Jean Marius, Paris, 1746.* l'histoire de la Virginie, traduite de l'Anglois, *Orléans 1707, p. 406.*; l'Histoire Naturelle du P. Rzaczynsky, à l'article du Castor, &c. &c.

blished a society, they reduce strangers and travellers of their own species into slavery ; that these they employ to carry their earth and to drag their trees ; that they treat in the same manner the lazy and old of their own society ; that they turn them on their backs, and make them serve as vehicles for the carriage of their materials ; that these republicans never associate but in an odd number, in order to have always a casting voice in their deliberations ; that each tribe has its chief ; that they have established sentinels for the public safety ; that, when pursued, they tear off their testicles to satisfy the avarice of their hunters ; that, in this mutilated state, they exhibit themselves to procure compassion from their persecutors *, &c. In proportion as we reject with contempt those exaggerated fables, we must admit the facts which are established and confirmed by moral certainties. The works of this animal have been a thousand times viewed, measured, overturned, designed, and engraven. What is still more convincing, some of these singular works still subsist, though less common than when North America was first discovered, and have been seen by all the missionaries, and all the latest travellers who have penetrated into the northern regions of that continent.

It is universally agreed, that, beside the beavers who live in society, there are, in the same climate, others

* See *Ælian*, and all the ancients, except *Pliny*, who, like a philosopher, denies the fact. For the other articles, see most of the authors quoted in the preceding note.

others who are solitary, and rejected, it is said, from the social state for their crimes, reaping none of its advantages, having neither house nor magazine, and living, like the badger, in holes under the ground. These solitary beavers are called *terriers*. They are easily distinguished by their dirty and tattered robe; for the hair of their back is rubbed off by the friction of the earth. They live, like the other kind, upon banks of waters, where some of them make a ditch of several feet deep, in order to form a pond that may reach to the mouth of their hole, which frequently exceeds 100 feet in length, and all along slopes upward, to facilitate their retreat, in proportion as the water rises during inundations. But there are other solitary beavers, which live at a considerable distance from water. All our European beavers are *terriers* and solitary, and their fur is not nearly so valuable as that of those which live in society. They differ in colour, according to the climate they inhabit. In the northern deserts, they are perfectly black, and their furs are finest; but, even there, some are found entirely white, others white spotted with gray, and others with a mixture of red upon the nap of the neck and haunches *. In proportion as they recede from the north, their colour turns clearer and more mixed. In the north of Canada they are chestnut coloured; farther south, they are bay, and of a pale

* *Castor albus, cauda horizontaliter plana; Brisson. Regn. anim. p. 94.*

pale straw colour among the Illionois *. In America, beavers are found from the 30th degree of north latitude to beyond the 60th. They are very frequent in the north, and gradually decrease as we advance southward. The same thing holds in the Old Continent: They never appear in numbers but in the northern regions; and they are very rare in France, Spain, Italy, Greece, and Egypt. They were known to the ancients. The religion of the Magi prohibited the killing of beavers. They were common on the margins of the Pontus Exinus, and were distinguished by the name of *Canes Pontici*: But they probably were not quiet enough in this situation, (for the coasts of this country have been frequented by men from the earliest periods of history), since their society and labours are mentioned by none of the ancients. Ælian, in particular, who betrays so strong an affection for the marvellous, and who, I believe, first said that the beaver cut off his testicles to allow them to be collected by the hunters †, would never have failed to mention the wonders of their republic, and their talents for architecture. Even Pliny himself, whose bold, sublime, and melancholy genius, made him uniformly despise men to exalt Nature, could not have abstained from comparing the labours of Romulus to those of the beavers. It is, therefore, apparent, that their industry in building

was

* Hist. de la Nouvelle France, par le P. Charlevoix, tom. 2.
p. 94.

† Hist. anim. lib. 6. cap. 34.

was altogether unknown to the ancients; and, although cabined beavers have lately been found in Norway, and in other northern regions of Europe, and though it is probable that the ancient beavers built as well as the modern; yet, as the Romans never penetrated so far north, it is not surprising that their writers are silent on this subject.

Several authors have affirmed, that the beaver, being an aquatic animal, could not live upon land, without water. But this notion is false; for the young beaver sent me from Canada was always kept in the house; and, when first presented to water, it was afraid, and refused to enter into that element. But, after being forced, and retained in a basin, it grew so easy in a few minutes, that it made no attempts to get out; and, when left at liberty, it often returned to the water spontaneously. It likewise avails itself of the mire and moist pavements. One day he escaped, and descended by a stair into the subterraneous vaults in the royal garden. He continued for some time to swim in the stagnant water in the bottom of these vaults. However, as soon as he saw the light of the torches which were brought to search for him, he returned to those who called him, and allowed himself quietly to be taken. He is familiar, without being caressing: He asks to eat from those who are at table; and his petitions consist of a small plaintive cry, and some gestures with his hand. When he receives

ceives a morsel, he carries off and conceals it, to be eaten at leisure. He sleeps pretty often, reposing on his belly. He eats every thing, except flesh, which he constantly refuses, whether it be raw or roasted. He gnaws every thing he can find, stuffs, furniture, wood, &c.; and we have been obliged to line, with a double coat of tinned iron, the barrel in which he was transported.

Though the beavers prefer the margins of lakes, rivers, and other fresh waters; yet they are found on the sea-coasts, but principally on mediterranean gulfs which receive great rivers, where the water has not its usual saltness. They are hostile to the otter, whom they chase, and will not permit to appear in the waters they frequent. The fur of the beaver is finer and more bushy than that of the otter: It consists of two kinds of hair; the one, which is short, but bushy, fine as down, and impenetrable by water, immediately covers the skin; the other, which is longer, firmer, more splendid, but thinner, serves the former as a furtout, defending it from dust and dirt. This second kind of hair is of little value; it is the first alone that is employed in our manufactures. The black furs are generally most bushy, and consequently in greatest esteem. The fur of the terrier beaver is much inferior to that of the cabin-building kind. The beavers, like all other quadrupeds, cast their hair in summer; and the furs of those caught during this season are of little value.

lue. The fur of the white beaver is greatly esteemed, on account of its rarity; and the perfectly black furs are nearly as rare as the white.

But, beside the fur, which is the most precious article, the beaver furnishes a matter, of which great use has been made in medicine. This matter, called *castoreum*, is contained in two large bags or bladders, which the ancients mistook for the testicles of the animal. We shall here give neither the description nor the uses of that substance*, because they are to be found in all our dispensatories†. The savages, it is said, extract an oil from the tail of the beaver, and use it as a topical application for several diseases. The flesh of the beaver, though fat and delicate, has always a disagreeable flavour. Their bones are said to be excessively hard; but, concerning this fact, we have had no opportunities of determining, because we dissected only a young one. Their teeth are very hard, and so sharp, that they are used by the savages as knives to cut, hollow, and polish their timber. The savages clothe themselves with beavers skins; and, in winter, turn the shaggy side inward; and these, from their having imbibed much sweat from the perspiration of their

* See Le Traité du castor, par Marius et Francus.

† It is alledged that the beavers press out this liquor with their feet, that it restores their appetite after a disgust, and that the savages rub the snares with it which they lay for apprehending these animals. It is more certain, however, that they use this liquor for greasing their hair.

their wearers, are called *fat-beaver*, or *coat-beaver*, and are employed for coarse works only.

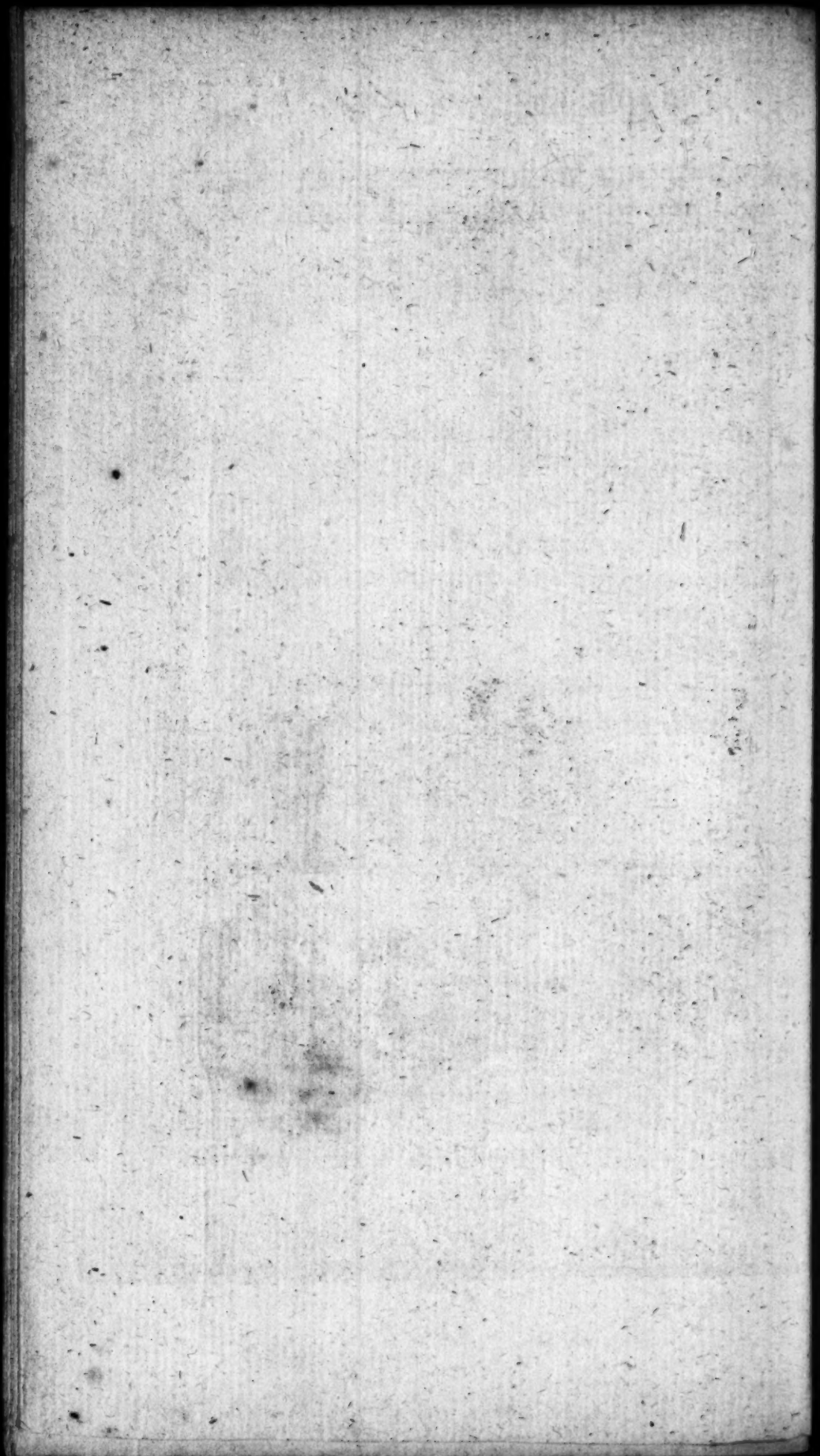
The beaver uses his fore-feet, like hands, with equal dexterity as the squirrel, the toes being well separated; but those of the hind-feet are united by a membrane. These they employ as fins, and extend them like the toes of a goose, which animal they resemble in their walking upon land. The beaver swims better than he runs: As his fore-legs are much shorter than the hind ones, he always walks with his head low, and his back arched. His senses are extremely delicate, especially the sense of smelling. Dirtiness and bad smells seem to be perfectly unsupportable to him. When retained in confinement too long, and obliged to void his excrements, he places them near the threshold of the door, and, as soon as it is opened, he pushes them out. This habit of cleanliness is natural to them; and our young beaver never failed, in this manner, to clean his habitation. At the age of twelve months, he exhibited marks of ardour for a female, which renders it probable that he had then nearly attained his full growth. Hence the duration of life in these animals cannot be very long; perhaps it is too much to extend it to fifteen or twenty years. It is not astonishing that this beaver was smaller than others of his age, having been perpetually confined almost from his birth; and, being unacquainted with water till he was nine months old, he could neither grow nor expand

Plate CV.



A. Bell sculpt

BEAVER.



pand like those who enjoy liberty and the use of that element, which appears to be equally necessary to them as the land.

S U P P L E M E N T.

We formerly remarked, that the beavers were common to both Continents ; and they are, in fact, as frequent in Siberia as in Canada. They may be easily tamed, and even taught to fish, and to bring home their prey to the family. M. Kalm assures us of this fact :

‘ I have seen in America,’ says he, ‘ beavers so fully tamed, that, when sent out to fish, they brought home the booty to their master. I have also seen others which were so familiar with their masters, and with the dogs, that they followed them, accompanied them in the boats, jumped into the water, and, in a moment after, returned with a fish *.’

‘ We have seen,’ says M. Gmelin, ‘ in a small village of Siberia, a beaver that was brought up in the house, and was so exceedingly tractable, that he sometimes made voyages to a considerable distance, decoyed females, and brought them home ; after the season of love was over, these females returned without any conductor †.’

THE

* Voyage de Kalm, tom. 2. p. 350.

† Voyage de Kamtschatka, p. 73.

THE RACCOON*.

SEVERAL authors have described this animal under the name of *Coati*. But, to prevent its being confounded with the true *Coati*, or even with the *Coati-mondi*, we have adopted its English name.

The raccoon which we have had alive, and kept him twelve months, was of the size and figure of a small badger. His body is thick and short, and the hair long, bushy, black at the points, and gray underneath. His head resembles that of the fox; but his ears are round and much shorter. The eyes are large, and of a yellowish green colour. Above the eyes, a black band runs across;

* This animal has a black sharp pointed nose; upper jaw longer; ears short, and rounded; eyes surrounded with two broad patches of black; from the forehead to the nose, a dusky line; face, cheeks, and chin, white; upper part of the body covered with hair, ash-coloured at the root, whitish in the middle, and tipped with black; tail very bushy, annulated with black; toes black, and quite divided; *Pennant's Synops. of quad. p. 199.*

Vulpi affinis Americana, Rattoon seu Raccoon; Ray, quad. p. 179.

Vulpes Americana, Mapach dicta, Anglice Rattoon; Charlet. p. 15.

Raccoon; Sloane, hist. of Jamaica, tom. 2. p. 329.

Ursus lotor, cauda annulata, fascia per oculos transversali nigra; Linn. Syst. Nat. p. 70.

Coati Brasiliensium; Klein. quad. p. 72.

Ursus cauda annulatim variegata; Brisson. Regn. animal. p. 261.

THE RACCOON.

across ; the muzzle is slender, the nose somewhat turned up, and the upper lip advances beyond the under one. He has, like the dog, six cutting teeth, and two canine in each jaw. The tail is bushy, as long as the body, and marked alternately with black and white rings through its whole extent. The fore-legs are much shorter than the hind ones ; and there are five toes, armed with strong sharp claws, on each foot. The hind feet rest so much on the heel, that the animal can elevate and support his body in a position inclined forwards. He uses the fore-feet in carrying food to his mouth. But, as his toes are rigid, and have little flexibility, he uses both hands at a time in laying hold of what is given him. Though thick and short, he is very agile : His claws, which are sharp as thorns, enable him to climb trees with great facility. He mounts the trunk with alacrity, and runs to the extremities of the branches. He goes by leaps, rather gambols than walks, and his movements, though oblique, are quick and light.

This animal is a native of the southern parts of America. He is never found in the Ancient Continent ; at least, those travellers who have described the animals of Africa and the East Indies make no mention of him. But he is very common in the warm regions of America, and particularly in Jamaica *, where he lives in the mountains, from which he descends to eat the sugar canes.

* Sloan's Nat. hist. of Jamaica, tom. 2. p. 329.

canes. He appears not in Canada, nor in the northern parts of the Continent; and yet he can support excessive cold. M. Klein * kept one at Dantzick; and the one in my possession has passed a whole night with his feet frozen in ice, without suffering any injury.

The raccoon softens, or rather dilutes, in water every thing he intends to eat. He throws his bread into the basin that holds his water; and, unless pressed with hunger, he does not remove it till it be well soaked. But, when very hungry, he eats dry food, or any thing that is presented to him. He searches about, and eats every thing that he can find, as flesh, either crude or prepared, fishes, eggs, living fowls, grain, roots, &c. He likewise devours all kinds of insects. He delights in hunting spiders; and, when at liberty in the garden, he eats grasshoppers, snails, and worms. He loves sugar, milk, and other soft kinds of nourishment, except fruits; but all these he rejects, when he can have flesh or fish. He retires to a distance to obey the calls of nature. He is familiar, and even caressing; for he leaps upon those he is fond of, playing spontaneously, and perpetually moving about with great agility. He appears to have much of the nature of the maki, and to possess some of the qualities of the dog.

S U P.

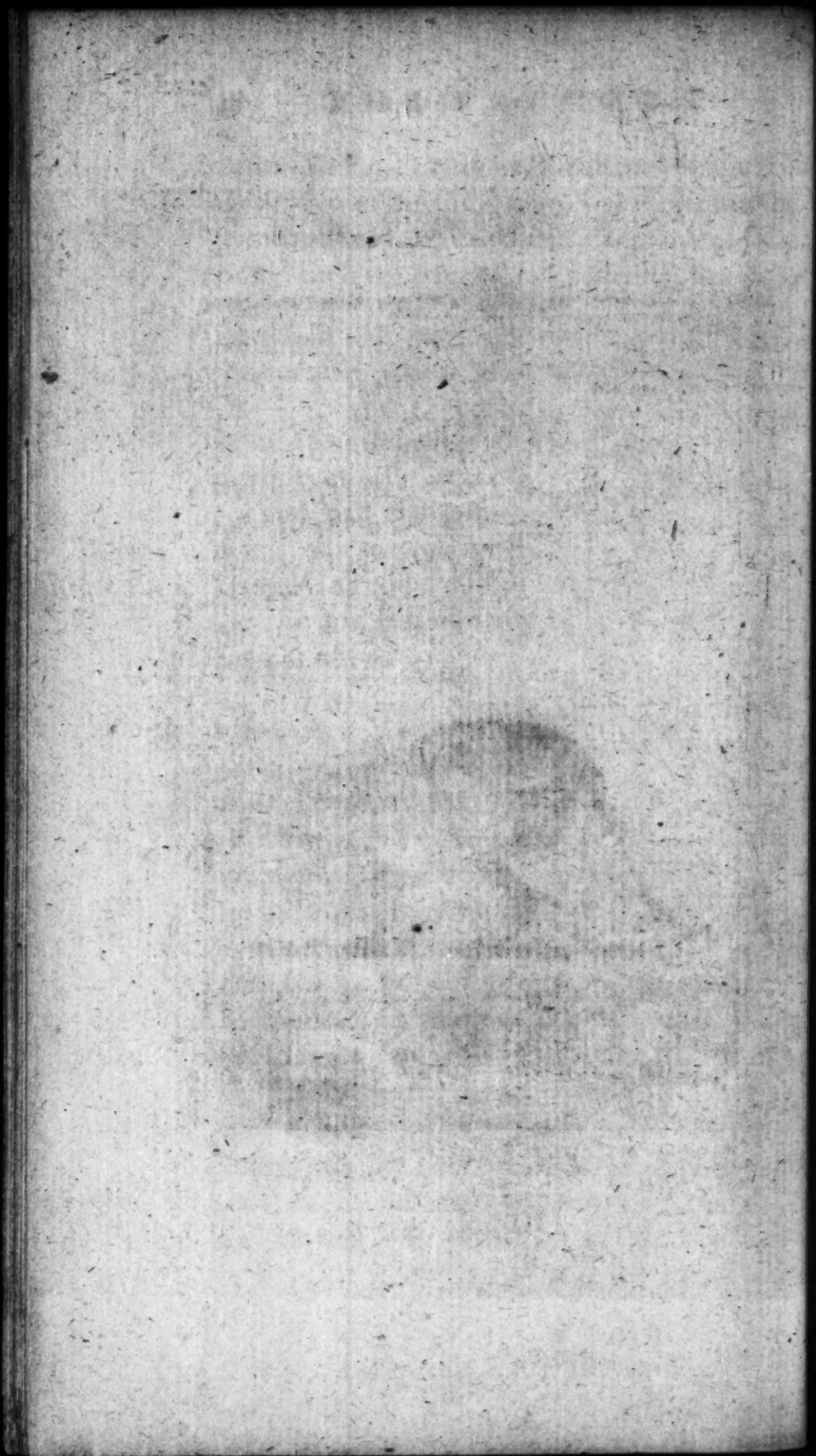
* Klein, quad. p. 62.

Plate CVL



A. Bell sculpt.

RACCOON.



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S U P P L E M E N T.

Concerning the raccoon, I have received the following communication from M. Blanquart des Salines, in a letter dated Calais, October 29. 1775.

“ My raccoon, before he came into my possession, had always been chained. In this state of captivity, he was very gentle, but had little inclination to caress. The people of the house were all equally kind to him; but he received them differently; for what pleased him in one, he revolted against in another; and in this his conduct was invariable.

“ His chain sometimes broke; and liberty rendered him insolent. He took possession of an apartment, would allow none to enter, and it was with some difficulty that he could again be reconciled to bondage. Since he came under my management, I have frequently given him his liberty. Without losing sight of him, I allowed him to walk about with his chain; and each time his gratitude was expressed by a thousand caressing gambols. But this is by no means the case when he makes his escape himself. He then roams about, sometimes for three or four days together, upon the roofs of the neighbouring houses, descends, during the night-time, into the court-yards, enters the hen-houses,

VOL. V. D strangles

strangles all the poultry, and eats their heads. His chain does not render him more humane, but only more circumspect. He then employs every artifice to make the fowls grow familiar with him; he permits them to partake of his victuals; and it is only after having inspired them with the highest notions of security, that he seizes one, and tears it in pieces. Some young cats have met with the same fate. The motions of this animal, though light, are always oblique; and I doubt if he can overtake other animals by running. He opens oysters with wonderful dexterity. His sense of touching must be exquisite. In all his little operations, he seldom uses either his nose or his eye. For example, he makes an oyster pass under his hind-paws; then, without looking at it, he searches with his hands for the weakest part; there he sinks his claws, separates the shells, and leaves not a vestige of the fish. In all this operation, neither his eyes nor his nose, which he keeps at a distance, are of the least use to him.

“This raccoon is not very grateful for the caresses he receives; but is extremely sensible of bad treatment. A servant one day gave him several lashes with a whip. But this man has ever since endeavoured in vain to accomplish a reconciliation. Neither eggs nor fishes, of which the animal is exceedingly fond, can appease his resentment. At the approach of the servant, the raccoon flies into a rage; his eyes kindle; he springs

spring at the man, utters most dolorous cries, and rejects every thing presented to him, till the disagreeable object disappears. The accents of his rage are very singular, sometimes resembling the whistling noise of the curlew, and sometimes the hoarse barking of an old dog.

“ If any person strikes him, or if he is attacked by an animal that he thinks stronger than himself, he makes no resistance; but, like the hedge-hog, conceals his head and feet by rolling up his body in the form of a ball; no complaint escapes him; and, in this position, he calmly submits to be killed.

“ I remarked, that he never allowed hay or straw to remain in his nest; but chose rather to lie upon wood. When litter is put in, he instantly throws it out. I never perceived that cold made him uneasy. Of three winters, he has passed two exposed to all the rigours of the air. I have seen him covered with snow, having no shelter, and yet in good health. I imagine that he is not solicitous about heat. During the last frosts, I presented to him warm water, and water almost frozen, for diluting his food; but he uniformly preferred the latter. He had liberty of sleeping in the stable; but he often preferred a corner of the court.

“ The defect of saliva, or having but a small quantity of it, is, I imagine, the reason why this animal dilutes his food with water. He never eats fresh or bloody meat, nor a peach, nor a

raisin. But he plunges every thing that is dry into his bason.

“He abhors children; their crying irritates him; and he makes every effort to spring upon them. A small bitch, of which he is fond, he chastises severely when she barks too loud. I know not why several animals equally detest sharp cries. In the year 1770, I had five white mice. I happened to make one of them cry; the others attacked it: I continued to make it cry; and they killed it.

“This raccoon is a female; she comes in season in the beginning of summer, and her ardour for the male continues six weeks. During this period, nothing can quiet her; every object is disgusting; and she hardly takes nourishment. A hundred times each day she passes, between her thighs and between her fore-feet, her bushy tail, which she seizes by the end with her teeth, and agitates perpetually, to give friction to the parts.

“This animal acquires not its full growth till it be two years and a half old.”

The COATI, or Brazilian Weasel *.

THIS animal has been called *Coati-mondi* by several authors. We have had it alive; and, after comparing it with the Coati mentioned by Thevet, and described by Marcgrave, we discovered the Coati and Coati-mondi to be only varieties of the same species; for Marcgrave, after describing the Coati, says that there are other Coati of a dark brown colour, called, for the sake of distinction, *coati-mondi* by the Brazilians. He admits not, therefore, any other difference between the coati and coati-mondi, but that of the colour of the hair; and hence they can be regarded as varieties only of the same species.

D 3

The

* Weasel with the upper jaw lengthened into a pliant moveable proboscis, much longer than the lower jaw; ears rounded; eyes small; nose dusky; hair on the body smooth, soft, and glossy, of a bright bay colour; tail annulated with dusky and bay; breast whitish; length from nose to tail eighteen inches; tail thirteen inches; *Pennant's Synops. of quad. p. 229.*

Coati; *Thevet. singular. de la France Antarctique, p. 95. Marcgrav. hist. nat. Brasil. p. 228.*

Coati-mondi; *Hist. de l'Acad. tom. 3. part. 2. p. 17.*

Vulpes minor, rostro superiori longiusculo, cauda annulatim ex nigro et rufo variegata; *Barrère hist. de la France Equinox. p. 167.*

Ursus naso producto et mobili, cauda annulatim variegata; *Briffon. Regn. animal. p. 190.*

Viverra nasua, rufa, cauda albo annulata; *Linn. syst. p. 64.*

The coati is very different from the raccoon described in the preceding article. He is of a smaller stature; his body and neck, head and muzzle, are much longer; the upper jaw is terminated by a kind of moveable snout, which stretches an inch, or an inch and a half, beyond the extremity of the under jaw. This turned up snout, joined to the length of the jaws, gives to the muzzle a curved and elevated appearance. The coati has also smaller eyes than the raccoon, shorter ears, longer, coarser, and less variegated hair, shorter legs, and longer feet; and it rests still more upon the heel. Like the raccoon, it has an annulated tail *, and five toes on each foot.

Some authors regard the sow-badger as a coati, and have added to this genus the *taxus suillus* †, of which Aldrovandus has given a figure. But, when it is considered, that the sow-badger mentioned by hunters is supposed to be found in France, and even in colder European climates, and that, on the contrary, the coati never appears but in the southern climates of the New Continent, this notion must be rejected, as having no foundation to support it ‡; for the figure given by Aldrovandus is nothing more than that of a badger,

* Some coatis have the tail of one uniform colour; but, as there are no other differences, they must be considered as varieties only, and not as distinct species.

† Brisson. regn. anim. p. 263.

‡ See what we remarked concerning the *Taxus suillus*, article Badger.

badger, with the addition of a sow's snout. The author pretends not to have drawn this animal from nature; and he has not described it. The long muzzle and moveable snout sufficiently distinguish the coati from all other animals. Like the bear, the coati stands with ease on his hind-feet, resting upon his broad heels, which are terminated by large callosities, extending outward, and augmenting the base of the feet.

The coati has a trick of gnawing his own tail, which, when not mutilated, exceeds the length of the body; he generally carries his tail erect, and sweeps it about from side to side. This remarkable practice of gnawing the tail is not, however, peculiar to the coati; the monkeys, the *makis*, and some other animals which have long tails, shorten them one third, or one fourth, by eating both the flesh and the vertebrae. This circumstance gave rise to a general conclusion, that, in very long members, the extremities of which are, of course, removed to a great distance from the centre of sensation, the feeling is weak, and that this weakness of feeling is proportioned to the distance and the thinness of the part; for, if the extremity of the tail, in those animals, was very sensible, the pain excited would be stronger than the desire of mutilation, and they would preserve their tails with equal anxiety as the other parts of their bodies. Upon the whole, the coati is an animal of prey,
which

which lives upon flesh and blood, and which, like the fox or martin, devours small animals and fowls *, eats eggs, and hunts for the nests of birds †; and it is, probably, from this conformity of disposition, rather than from any resemblance to the martin, that the coati has been considered as a small species of the fox ‡.

* Marcgrave, hist. Brasil. p. 228.

† Thevet, Singular. de la France Antarct. p. 96.

‡ In the Seventh volume of the Transactions of the Swedish Academy, we have the following remarks concerning the coati-mondi, by Linnaeus, which we shall transcribe, without pretending to vouch his facts.

‘This animal,’ says Linnaeus, ‘is *equally* numerous both in *South* and in *North* America. In the length of his hind-legs, the inclination of his head, the bushtiness of his hair, and in his paws, he resembles the bear. But he is small and familiar; and his tail is very long, and variegated with different colours. The Prince of Sweden made a present of one of these animals to Linnaeus, who kept it a considerable time, but lost all the labour he bestowed in attempting to civilize it; for the coati-mondi, when it could slip into the court-yard, violating all the rights of hospitality, tore off the heads of the poultry, and drank their blood. It was so obstinate, that it would do nothing contrary to its inclination. Notwithstanding the smallness of this animal, he defended himself with great force, when any body attempted to seize him against his will; and he stuck fast to the legs of those with whom he was familiar, when he wanted to ransack their pockets, and carry off what he found in them. But there is a remedy for this obstinacy. The coati has an extreme aversion to hog’s bristles; and the smallest brush makes him desert his enterprise. He was one day worried by a mastiff; and M. Linnaeus dissected him. His mode of living was very singular.

Plate CVII.



A. Bell's sculp.

BLACK COATI.

Plate CVIII.



BROWN COATLI.

lar. He slept from midnight till noon, waked the rest of the day, and uniformly walked about from six in the evening till midnight, without the least regard to the weather. This is probably the time assigned by nature to this species of animals, when in their own country, for procuring their food, for hunting birds, and discovering their eggs, which constitute their principal nourishment; *Biblioth. raisonnée, tom. 41. part. 1. p. 25.*

THE

The AGOUTI, or Long-nosed CAVY*.

THIS animal is about the size of a hare, and has been regarded, by most systematic writers as a species of rabbit, or large rat. These animals, however, it resembles in some minute characters only; but, in natural dispositions, it differs essentially from them both. It has the rudeness of hair, the grunting, and likewise the voracious

* Cavy, with a long nose; divided upper lip; short rounded lips; black eyes; hair hard and shining; on the body mixed with red, brown, and black; on the rump, of a bright orange colour; belly yellow; legs almost naked, slender, and black; four toes on the fore-feet, three on the hind; tail short, and naked; size of a rabbit; *Pennant's Synopf. of quad.* p. 245.

Agouti is the Indian name of this animal; but, in Brasil, it is called *Cotia*; *Pison, et Marcgrave.*

Acuti or *agouti*; *Hist. du Nouveau Monde par Jean de Laet*, p. 484. The little that Laet has said of this animal is transcribed from a Portuguese writer.

Aguti; *Pison. Hist. nat. du Brasil.* p. 102. *Acuti* or *Aguti.* *Marcgrave, Hist. nat. Brasil.* p. 224.

Couti; *Hist. des Indes par Souchu de Rennefort*, p. 203.

Mus sylvestris Americanus, *cuniculi magnitudine*, *pilis et voce porcelli*; *Ray, Synopf. quad.* p. 226.

Cuniculus omnium vulgatissimus, *aguti vulgo*; *Barrere, Hist. de la France Equinoctiale*, p. 153.

Cavia, *aguti*, *vel acuti Brasiliensibus*; *Klein. quad.* p. 50.

Cuniculus caudatus, *auritus*, *pilis ex rufo et fusco mixtis*, *rigidis vestitus*; *Briffon. Regn. anim.* p. 143.

Mus aguti, *cauda abbreviata*, *palmis tetradactylis*, *plantis tridactylis*, *abdomine flavescente*; *Linn. Syst.* p. 80.

cious appetite of a hog; and, when fully glutted, it conceals, like the fox, the remainder of its food in different places. The agouti delights in cutting and gnawing every thing he meets with. When irritated, the hair of his back rises, and he strikes the ground forcibly with his hind-feet. His bite is cruel *. He digs not a hole, like the rabbit, nor sits on the ground like the hare; but generally lives in the hollows of decayed trees. Fruits, potatoes, and manioc, are the common food of those which live near the habitations of men. But those which live in the woods and savannas feed upon leaves and roots, plants and shrubs. The agouti, like the squirrel, uses his fore-feet in holding his food, and carrying it to his mouth. He runs very nimbly both on plain and rising grounds. But, as his fore legs are much shorter than his hind-legs, he would tumble headlong, if he did not slacken his course in descending. Both his eye and his ear are fine. He stops and listens to the sound of music. The flesh of those which are fat and well fed is not very bad, though it be hard, and not very agreeable to the taste. They scald the agouti, and make him ready, in the same manner as a pig. He is hunted with dogs. When forced among the cut sugar canes, he is soon taken; because these grounds being generally covered a foot thick

* This animal is very mischievous: The capuchins of Olinda in Brasil brought up a young one, and used the precaution of extracting his teeth; yet he continued to extend his devastations as far as his chain allowed him; *Hist. des Indes par Souchu de Rennefort*, p. 203.

thick with straw and leaves, at each leap he sinks in this litter, so that a man may overtake and slay him with a stick. He commonly runs very nimbly before the dogs; and, when he gains his retreat, he lies squat, and remains obstinately in his concealment. The hunters are obliged to chase him out by filling his hole with smoke: The animal, half suffocated, utters mournful cries; but never issues forth, unless when pushed to the last extremity. His cry, which he often repeats when disturbed or irritated, resembles that of a small hog. If taken young, he is easily tamed, and goes out and returns of his own accord. These animals commonly reside in the woods and hedges; where the females choose a place well covered and bushy, and there prepare a bed of leaves and hay for their young. They annually produce two or three, but generally two *. Like the cats, they transport their young, two or three days after birth, into the hollows of trees, where they suckle them for a short time. The young are soon in a condition to follow their mother, and to search for food. Thus their time of growth is short; and, consequently, the duration of their lives cannot be long.

The agouti appears to be an animal peculiar to the southern parts of America, as none of them are ever found in the old world. They are common

* Hist. gen. des isles Antilles, par le Pere. du Tertre, tom. 2. p. 296.

mon in Brasil, in Guiana, in St Domingo, and in all the islands. They seem to require a warm climate, in order to subsist and to multiply. They can live, however, in France, if kept in a dry place, and sheltered from the winter frosts. Even in America, they appear not in the temperate or cold regions. In the islands, there is only the species of agouti which we have described. But at Cayenne, and in Guiana and Brasil, a second species is mentioned, called *Agouchi*, which is said to be uniformly smaller than the first. But we are assured, by the evidence of persons who have lived long at Cayenne, and who know both the agouti and agouchi, the latter of which we have never been able to procure, that the animal we have described is the true agouti. We had it alive : It was as large as a rabbit ; its hair was rude, and of a brown colour, a little mixed with red. Its upper lip was divided like that of the hare : Its tail was still shorter than the tail of the rabbit : The ears were short and broad. The upper jaw advanced beyond the under : The muzzle resembled that of the dormouse, and the teeth those of the marmot. The neck was long, and the legs slender : It had four toes on the fore, and three on the hind-feet. Marcgrave and most naturalists after him, have asserted, that the agouti had six toes on the hind-feet. M. Brisson is the only writer who has not copied this error of Marcgrave : Having described the animal from

from nature, he found, as we did, only three toes on the hind-feet.

S U P P L E M E N T.

We have little to add concerning the agouti: M. de la Borde informs us, that, in Guiana, it is the most common quadruped, all the woods, plains, heights, and even the marshes, being full of these animals.

“ The Agouti,” says he, “ is about the size of a hare; his skin is hard, and lasts very long when employed as an upper-leather to shoes. He has no grease: His flesh is as white and nearly as good as that of the rabbit, having the same taste and flavour. Whether old or young, their flesh is always tender; but those which inhabit the sea-coast are best. They are taken in traps, or hunted with dogs. The Indians and Negroes, who know how to allure them by whistling, or imitating their cries, kill as many of them as they please. When pursued, they conceal themselves, like the rabbits, in the holes of old trees. They hold their food in their paws, like the squirrels. Their ordinary food, which they often conceal in the earth, to be used occasionally, are the nuts of the maripa, of the tourlovri, of the corana, &c.; and, after concealing these nuts, they often touch them not for six months.

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Plate CIX.



A Bell'sculp.

AGOUTI.

months. They multiply as fast as the rabbits, producing three, four, and sometimes five young ones, during every season of the year. They live not in numbers in the same hole; but they are either found alone, or the mother with her young. They are easily tamed, and eat almost every thing. When in a domestic state, they remove not to any great distance, and always return to the house spontaneously. But they constantly retain a little of their savage disposition. In general, they remain in their holes during the night, unless the moon shines bright; but they run about during most of the day. There are some countries, as about the mouth of the river of the Amazonas, where these animals are so numerous, that they are often met with in scores.

T H E

T H E L I O N*.

THE influence of climate, in the human species, is marked only by slight varieties; because this species is single, and extremely distinct from every other. Man, white in Europe, black in Africa, yellow in Asia, and red in America, is the same animal, tinged with the colour peculiar to the climate. As he is formed to exercise dominion over the earth, and, as he has the whole globe for his habitation, his nature seems to be accommodated to every situation. Under the fervours of the south, or the frozen regions of the north, he lives, multiplies, and is so universally and so anciently diffused over every country, that he appears to have no peculiar climate.

Among

* Cat with a large head; short rounded ears; face covered with short hairs; upper part of the head, chin, whole neck and shoulders, with long shaggy hairs, like a mane; hair on the body, and limbs short and smooth; along the bottom of the belly long; limbs of vast strength; tail long, with a tuft of long hairs at the end; colour tawny, but on the belly inclines to white; length of the largest lion, from nose to tail, above eight feet; the tail four feet: The lioness or female is less, and wants the mane; *Pennant's Synops. of quad.* p. 164.

In Greek, Λεων; in Latin, *Leo*; in Italian, *Leone*; in Spanish, *Leon*; in German, *Lew*; in Swedish, *Leyon*; in French, *Le Lion*.

Leo; *Gesner. quad.* p. 572. *Icon. quad.* p. 66. *Ray, Synops. quad.* p. 162. *Klein. quad.* p. 81.

Felis leo, cauda elongata, corpore helvolo; *Linn. Syst.* p. 60.
Felis cauda in floccum definente; *Briffon. Regn. anim.* p. 268.

Among the other animals, on the contrary, the influence of climate is stronger, and marked by sensible characters ; because they differ in species, and their nature is perfect, and less diffused than that of man. The varieties of each species are not only more numerous, and more strongly marked, but even the differences of species themselves seem to depend upon the differences of climate. Some are unable to propagate but in warm, and others cannot subsist but in cold countries. The lion never inhabited the northern regions ; the rein-deer was never found in the south ; and perhaps no other species but that of man is generally diffused over the whole surface of the globe. Each has its peculiar country, to which it is confined by a physical necessity ; each is a genuine son of the country it inhabits ; and it is in this sense alone, that particular animals ought to be called natives of a particular climate.

In warm countries, the land-animals are larger and stronger than in the frozen or temperate regions. They are likewise more hardy and ferocious. All their natural qualities seem to originate from the ardour of the climate. Lions, born under the scorching heats of Africa or the Indies, are the strongest, the fiercest, and the most formidable. Our wolves, and other carnivorous animals, would hardly have the merit of being his providers *. The lions of America, if they deserve that name, are, like the climate, infinitely

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more

* There is a species of *Lynx* call *the Lion's Provider*.

more mild than those of Africa; and, what proves that the excess of their ferocity originates from the excess of heat, is, that, in the same country, those who inhabit the high mountains, where the air is temperate, differ in disposition from those who live in the plains, where the heat is extreme. The lions of Mount Atlas, the summit of which is sometimes covered with snow, have neither the courage, the strength, nor the ferocity of the lions of Biledulgerid or of Zaara, whose plains are covered with burning sands. It is chiefly in these fervid deserts that we meet with those terrible lions, who are the dread of travellers, and the scourge of the neighbouring provinces. Happily the species is not numerous: It even appears to diminish daily; for, from the testimony of those who have traversed this part of Africa, the number of lions is not nearly so great as formerly. The Romans, says Mr Shaw*, drew from Lybia, for their public spectacles, fifty times more lions than could now be found in that country. It has likewise been remarked, that, in Turkey, Persia, and India, lions are much less frequent than they were in ancient times: And, as this bold and powerful creature preys on every other animal, and is himself a prey to none, the diminution of the species can only be attributed to the increase of the numbers of mankind; for, it must be allowed, that the strength of the king of animals is not match against the address of a Hottentot.

* Shaw's travels.

Hottentot or a Negro, who often attack him, face to face, with very light weapons. The lion, having no enemy but man, and his species being reduced to a fiftieth, or if you will, to a tenth part of its former standard, it follows, that the human species, instead of having suffered any considerable diminution since the time of the Romans, (as has been often alledged), is, on the contrary, increased, even in such countries as Lybia, where the power of man appeared to have been greater during the aera of Carthage, than it is now under that of Tunis and Algiers.

Man's industry augments in proportion to his numbers; but that of the other animals remains always the same. All the destructive species, as that of the lion, seem to be banished to distant regions, or reduced to a small number, not only because mankind have increased, but because they have also become more powerful, and have invented formidable arms which nothing can resist. Would to God man had never combined the operations of steel and fire for other purposes than those of destroying lions and tigers!

This superiority of man in numbers, and in industry, which has impaired the force of the lion, has likewise enervated his courage. Among animals this latter quality, though natural, rises or falls according as the exertions of their strength are successful or abortive. In the vast deserts of Zaara, in those which seem to separate two very different races of men, the Negroes and

the Moors, in the unpeopled regions that lie about the territories of the Hottentots, and, in general, in all those southern parts of Africa and Asia, which man has disdained to inhabit, the lions are still very numerous, and continue in their natural state. Accustomed to measure their strength with that of every animal they meet, the habit of conquering renders them terrible and intrepid. Being ignorant of the power of man, they are not afraid to encounter him. Having never experienced the force of his arms, they hold them in defiance. Wounds enrage, without terrifying them. They are not disconcerted even by the appearance of numbers. A single lion of the desert often attacks a whole caravan; and if, after a violent and obstinate engagement, he finds himself fatigued, instead of flying, he retreats fighting, always opposing himself to the enemy. Those lions, on the other hand, who dwell in the neighbourhood of the towns or villages of India or Barbary *, being acquainted with man, and the power of his arms, have lost their native fortitude to such a degree, that they fly from the threatenings of his voice, and dare not attack him. They content themselves with seizing small cattle, and even fly before the women and children †, who make them indignantly quit their prey, by striking them with clubs.

This

* L'Afrique de Marmol, tom. 2. p. 213. & la relation du Voyage de Thevenot, tom. 2. p. 112.

† L'Afrique de Marmol, tom. 1. p. 54.

This change, this softening in the temper of the lion, indicates that he is susceptible of the impressions he receives, and that he must possess a docility sufficient to render him tameable to a certain degree, and to admit of a species of education: And history informs us, that lions have been yoked in triumphal cars, and conducted to the battle or the chase; and that, faithful to their masters, they never exerted their strength or their courage but in opposition to the common enemy. This much is certain, that the lion, when taken young, and brought up among domestic animals, is easily accustomed to live, and even to sport innocently with them; that he is gentle and caressing to his master; and that, if he sometimes resumes his natural ferocity, he seldom turns his rage against his benefactors. As his movements are impetuous, and his appetites vehement, we ought not to presume that they can always be balanced by the impressions of education. It is dangerous, therefore, to allow him to want food too long, or to irritate him unnecessarily. Bad treatment not only enrages him, but he remembers it, and seems to meditate revenge, in the same manner as he remembers and requites benefits received. Here I might quote a great number of particular facts, some of which appear to be exaggerated; but the whole, when combined, are sufficient to prove, that the anger of the lion is noble, his courage magnanimous, and his temper susceptible of impressions. He has often been

known to disdain the insults, and to pardon the offensive liberties of weak enemies. When led into captivity, he discovers symptoms of uneasiness, without anger or peevishness; on the contrary, he assumes habits of gentleness, obeys his master, caresses the hand that feeds him, and sometimes pardons the animals which are thrown to him for prey. By this act of generosity, he seems to consider himself as for ever bound to protect them; he lives peaceably with them, allows them a part, and sometimes the whole of his food, and will rather submit to the gnawings of hunger than destroy the fruit of his own beneficence.

The lion cannot justly be branded with cruelty, since he acts from necessity, and kills no more than he consumes; while the tiger, the wolf, the hyaena, and many other inferior species, such as the fox, the martin, the polecat, the ferret, &c. delight in slaughter, and seem rather to gratify their rage than their hunger.

The external appearance of the lion detracts not from the noble and generous qualities of his mind. His figure is respectable, his looks firm and determined, his gait stately, and his voice tremendous. His bulk is not excessive, like that of the elephant or rhinoceros. He is not gross and unwieldy, like the hippopotamus or the ox, nor too contracted, like the hyaena or the bear, nor lengthened to deformity, like the camel. The body of the lion, on the contrary, is so well poised and proportioned, that it may be regarded as a perfect

perfect model of strength combined with agility: Equally solid and springy, neither surcharged with fat nor with flesh, and containing nothing superfluous, he seems to be constituted entirely of nerves and of muscles. This great muscular force is manifested by the prodigious leaps and bounds which he performs with ease; by the brisk movements of his tail, a single sweep of which is sufficient to throw a man to the ground; by the facility with which he moves the skin of his face, and especially that of his front, which heightens greatly the expression of fury; and, lastly, by the power of moving the hair of his mane, which he not only erects, but agitates on all sides, when he is enraged.

To all these splendid individual qualities of the lion, we may add the nobleness of his species. By noble species in nature, I mean those which are constant, invariable, and liable to no suspicion of degradation. These species are commonly singular, and of themselves constitute a genus. They are distinguished by characters so deeply marked, that they can be neither mistaken, nor confounded with any other. To begin with man, who is the noblest being of the creation, his species is single, since men of all races, of all climates, and of all colours, can mix and propagate together; and, at the same time, no animal can be said to make any approaches to the human species by natural relation. In the horse, the species is not so noble as the individual; because he is so nearly approached

approached by the ass, that a junction of the two produces individuals, whom Nature treats as bastards, unworthy of the genuine race, and renders incapable of perpetuating either species of which they are the issue ; but, as proceeding from a mixture of the two, they fail not to demonstrate the great affinity between them. In the dog, the species is, perhaps, still less noble, because it seems to be allied to those of the wolf, the fox, and jackall, who may all be regarded as degenerated branches of the same family. In descending gradually to the inferior species, as those of the rabbit, weasel, rat, &c. we shall find, that each particular species has a number of collateral branches of which we are unable to discover the genuine root. Lastly, in the insects, which ought to be regarded as the lowest species in Nature, each kind is accompanied with so many neighbouring species, that we are obliged to denominate them by genera only. This is the chief use of methodical distributions, which ought not to be employed, except in difficult enumerations of the smallest objects in nature, but which become totally useless, and even ridiculous, in treating of the particular tribes. To class man with the monkey, or to say, that the lion is *a cat with a long mane and tail*, is to degrade and disfigure, instead of describing or denominating the objects of nature.

The species of the lion, therefore, is one of the most noble, because it is single, and cannot be confounded

confounded with those of the tiger, leopard, ounce, &c. These species, which seem to be the least removed from the lion, are so little distinguished from each other, that they have often been confounded by travellers and methodists*.

The largest lions are about eight or nine feet long, by four or five feet high, and the tail is about four feet long†. The small sized lions are about five and a half feet long, by three and a half feet high, and the tail is about three and a half feet in length. The lioness, in all dimensions, is about one fourth part less than the lion.

Aristotle‡ distinguishes lions into the greater and the smaller; the latter, he remarks, are proportionally shorter in the body, have their hair more crisped, and are less courageous than the former. He adds, that, in general, all lions are of a yellow colour. The first of these facts seems to be doubtful; for no traveller mentions lions with crisped hair: Some authors, who, in other respects, appear not to merit entire confidence, talk of a tiger with crisped hair, which is found at the Cape of Good Hope||. But almost all authors agree as to the colour of the lion, which

* See the article Tiger, where we have mentioned some animals, to which this name has been improperly applied.

† A very young lion, dissected by the gentlemen of the Academy, was seven and a half feet long, from the extremity of the muzzle to the origin of the tail, and four and a half feet high.

‡ Hist. anim. cap. 44.

|| Les Mem. de Kolbe, in which he calls this animal the Wolf-tiger.

which is yellow on the back, and whitish on the sides and belly. Ælian and Opian, however, affirm, that the Ethiopian lions are as black as the men; that, in India, there are lions entirely white, and others spotted with different colours, as red, black, and blue. But this seems not to be supported by any authentic evidence; for Marc-Paul, the Venetian, speaks not of these spotted lions as if he had seen them; and Gesner* properly remarks, that he only followed Ælian. It appears, on the contrary, that there are little or no varieties in this species; that the lions of Africa and of Asia are perfectly similar; and that the lions of the mountains differ from those of the plains in stature only, and not in colour.

The lion has a mane, or rather long hair which covers almost all the anterior parts of his body †, and grows always longer as he advances in age. But the lioness, however old, has no mane. The American animal, called a *Lion* by the Europeans, and *Puma* by the natives of Peru, has no mane, and is also smaller, weaker, and less courageous than the true lion. It is not impossible, that the mildness of this region of south America should have had such influence on the nature of the lion, as to deprive him of his mane, and diminish both his courage and his stature. But it seems to be an absolute impossibility, that
this

* Gesner, hist. anim. quad. 574.

† This mane consists of hair equally soft and smooth as that of the rest of the body.

this animal, who inhabits the countries within the tropics only, and against whom nature appears to have shut up every avenue to the north, should have passed from the southern regions of Asia or Africa into America, these continents being divided from each other, towards the south, by immense oceans. Hence we are led to conclude, that the Puma is not a lion sprung from those of the old world, and degenerated by the influence of the climate of America, but that he is an animal peculiar to America, like most animals of the new Continent. When the Europeans first discovered America, they found the quadrupeds, birds, fishes, insects, plants, and almost every thing, perfectly different from those of Europe. It was, therefore, necessary to denominate the principal objects of this new world. The names given them by the natives were mostly barbarous, and very difficult to pronounce or to remember. The names of objects were, of course, borrowed from those of the European languages, and especially from the Spanish and Portuguese. In this penury of denomination, the smallest analogy in external figure or in stature is sufficient to make us attribute to unknown objects the names of those with which we are acquainted. This gives rise to endless uncertainties and confusion, which are still further augmented, not only by giving to the productions of the new world the denominations of those of the old, but by the continual transportation of European plants and animals
into

into America. To obviate these difficulties, we ought carefully to distinguish what belongs to the one continent, from what belongs to the other, and to avoid the deceptions originating from improper denominations. We shall perceive the necessity of this discrimination in the subsequent article, where an enumeration of the animals peculiar to both continents shall be given.

M. de la Condamine, whose evidence merits the highest credit, says expressly, that he knows not whether the American animal called a *Lion* by the Spaniards, and *Puma* by the natives of Quito, deserves the name of a lion: He adds, that it is much smaller than the African lion, and that the male has no mane *. Fresier likewise informs us, that the animals called *Lions* in Peru, are very different from those of Africa; that they fly upon the approach of man; and that they are dreadful to the flocks only: He farther remarks, that their head somewhat resembles both the head of the wolf and of the tiger; and that their tail is less than the tail of either of these animals †. We learn, from more ancient relations ‡, that the American lions have no resemblance to those of Africa; that they have neither the stature, nor the boldness of the true lion; that they are neither red nor yellow, but of a gray colour;

* Voyage de l'Amerique Meridionale, p. 24.

† Le voyage de Fresier á la mer du sud, p. 132.

‡ Joseph Acosta, nat. hist. of the Indies.

colour; that they have no manes, and are accustomed to climb trees. Hence these animals differ from the lion in stature, in colour, in the form of the head, in the length of the tail, in the want of manes, and in their manners and dispositions. Characters so numerous and so essential ought forever to prevent us from confounding the Puma of America with the genuine lion of Africa or of Asia.

Though this noble animal inhabits the warmest climates only, he can subsist for a great length of time in temperate countries, and, perhaps, with some attention, might even be enabled to propagate. Gesner relates, that lions were brought forth in the menagerie of Florence; and Willoughby tells us, that, in Naples, a lioness that had been impregnated by a lion in the same den, brought forth five whelps at one litter. These examples are rare; but, if true, they prove that lions are not absolute strangers to a temperate climate. None of them, however, exist in the southern parts of Europe: In the age of Homer, there were no lions in the Peloponnesus, although they were then, and even in the days of Aristotle, in Thrace, in Macedonia, and in Thessaly. It is apparent, therefore, that, in all ages, they preferred the hot climates; that they seldom lived in temperate countries; and that they never inhabited the more northern regions. The naturalists above quoted, who speak of lions brought forth at Florence and Naples, are silent as to the time

time of the female's gestation, the size of the new-born whelps, and the quickness or slowness of their growth. Ælian * limits the time of gestation to two months ; but Philostratus and Edward Wotton † extend it to six. I am inclined to be of the latter opinion ; for the lion is an animal of great magnitude ; and we know, that, in general, among large animals, the time of gestation is longer than among the smaller species. The same thing takes place with regard to the growth of the body. Both ancients and moderns agree, that new-born lions are very small, being about the size of a weasel ‡, that is, six or seven inches in length. They must, therefore, require several years before they can grow eight or nine feet long. The young lions are likewise said to be two months old before they can walk. Without giving implicit faith to these facts, we may, with probability, presume, that the lion, from the largeness of his body, must require three or four years in acquiring his full growth, and that he ought to live about seven times three or four years, or nearly to the age of twenty-five. The Sieur de St Martin, master of the bull-fights at Paris, assures me, that he has kept lions sixteen or seventeen years ; and he imagines that they live not above the age of twenty or twenty-two. He has kept others twelve or fifteen years ; and

* Gesner, hist. quad. p. 575.

† Lib. de differ. anim. cap. 80.

‡ Ibid. cap. 80.

it is well known that their lives must be abridged, and their constitution weakened, by the want of exercise, confinement, and chagrin.

Aristotle affirms, in two different parts of his works *, that the lioness produces five or six whelps at the first litter, four or five at the second, three or four at the third, and two or three at the fourth; and that, after this last litter, which is always the least numerous, she becomes barren. This assertion merits no credit; for, in all animals, the first and last litters are less numerous than the intermediate ones. This philosopher erred, as well as all the naturalists who came after him, when he maintained that the lioness had two paps only; for it is now certain that she has four. He likewise affirms †, that the lion, the bear, and the fox, are brought forth in an unformed state: But it is now past a doubt, that these creatures are as well formed at birth as any other animals, and that all the members are distinctly unfolded. Lastly, he affirms, that the lions copulate in a reversed manner ‡; but, from a bare inspection of the parts of the male, it is evident, that the lion must copulate in the ordinary way of other quadrupeds. I have mentioned these slight errors of Aristotle, because the authority of this great man has deceived all the writers

* Arist. de Generatione, lib. 3. cap. 2. et 10.

† Ibid. lib. 4. cap. 6.

‡ Hist. Anim. lib. 5. cap. 2. Linn. Syst. p. 60. Leo retro mingit et coit.

writers on natural history since his time. What he remarks of the lion's neck being composed of one rigid and inflexible bone, has also been contradicted by experience; for, in every quadruped, without exception, and even in man, the neck consists precisely of seven vertebrae. It is another general fact, that the necks of carnivorous animals are shorter than those of the frugivorous, and particularly of the ruminating species. But this difference in the length of the neck depends on the largeness of each vertebra, and not on their number, which is always the same, from the elephant to the mole. With regard to the solidity of the lion's bones, which Aristotle affirms to have neither marrow nor cavity; to their hardness, which he compares to that of flint; and to their property of striking fire with steel; these blunders ought not to have been repeated by Kolbe*; nor should they have come down to our time; since, even in the days of Aristotle, they were ridiculed by Epicurus.

The lions are exceedingly ardent in their amours. When the female is in season, she is sometimes followed by eight or ten males†, who incessantly roar around her, and engage in the most furious combats, till one of them conquers all the rest, and retires in peaceable possession of his mate. The lioness brings forth in the spring‡, and produces but once in the year; which shows that

* Mem. de Kolbe, tom. 3. p. 4.

† Gefner, Hist. quad. p. 575.

‡ Id. ibid.

that she is occupied for some months in suckling and taking care of her young; and, consequently, that the time of their growing, when they need the assistance of the mother, is at least several months.

In these animals, all the passions, even those of the softest kind, are excessive. The maternal affection of the lioness is extreme. Though naturally weaker, and less courageous than the lion, whenever she has young, she becomes dreadfully ferocious. She then exposes herself with more boldness than the lion; she knows no danger; she attacks, indiscriminately, men and every other animal; and, after slaying them, carries them home to her whelps, whom she soon accustoms to suck the blood and tear the flesh. She commonly brings forth in places the most sequestered and inaccessible; and, when afraid of being discovered, she conceals the tracks of her feet, by returning several times on her steps, or effaces them with her tail. When her anxiety is great, she sometimes transports her young to a different place; and, if the hunters attempt to force them from her, she becomes perfectly furious, and defends them to the last extremity.

The lion, it is alledged, has neither the senses of smelling nor of seeing so acute as most animals of prey. The light of the sun seems to incommode him; he seldom goes abroad in the middle of the day, but makes all his excursions

during the night : When he sees the fires burning around the flocks, he never approaches them. It has also been remarked, that he perceives not the odour of other animals at a distance ; that he hunts by the eye only, and not by the scent, like the dog and the wolf, whose sense of smelling is finer. Even the name of *Guide*, or *Lion's Provider*, has been given to a species of lynx, which is supposed to have a piercing eye and exquisite scent ; and, it is said, that this lynx always follows or precedes the lion, to point out his prey. We are acquainted with this animal, which, like the lion, inhabits Arabia, Lybia, &c. and which sometimes follows the lion with a view to pick up what he leaves ; for, being smaller, and much weaker, he should rather fly from the lion than serve him.

The lion, when pressed with hunger, boldly attacks every animal that comes in his way. But, as he is extremely formidable, and is anxiously avoided by every beast of the forest, he is often obliged to lie concealed in the paths where animals commonly pass. He lies squat on his belly among brush-wood, from which he darts with such force, that he often seizes his prey at the first bound. In the deserts and forests, antelopes and monkeys are his common food, though he takes the latter when upon the ground only ; for he climbs not trees like the tiger or the Puma *. He devours as much at a time

as

* Klein de Quad. p. 82.

as will serve him two or three days. His teeth are so strong, that he breaks bones with ease, and swallows them along with the flesh. He is said to support hunger very long. As his temperament is exceedingly hot, he is impatient of thirst, and drinks as often as he finds water, which he laps like a dog. The tongue of the dog, when lapping, is bended upwards; but that of the lion is bended downward, which occasions him to drink long, and to lose much water. He requires about fifteen pounds of raw flesh every day. He prefers the flesh of living animals, especially of those whom he slays himself. He does not willingly eat putrid carcases, and chooses rather to hunt for a fresh prey than to use the remains of a former. Though he commonly feeds upon fresh meat, his breath is very rank, and the odour of his urine is insupportable.

The roaring of the lion is so loud, that, when uttered during the night in the deserts, it resembles, by the repetition of echoes, the noise of thunder *. This roaring is the ordinary voice of the lion; for, when enraged, he utters a short, and suddenly repeated cry. But the roaring is a prolonged cry, a kind of a deep-toned grumbling, mixed with a sharp vibrating noise. He roars five or six times in the day, and oftener before rain †. When enraged, his

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cry

* Voyages de la Boulaye-le-Gouz, p. 320.

† These facts I learned from the Sieur Saint-Martin, master of the bull-fights, who has kept several lions.

cry is still more terrible than his roaring. He then beats his sides and the earth with his tail, agitates his mane, moves the skin of his face, and his large eye-brows, shows his dreadful tusks, and thrusts out his tongue, which is armed with prickles so hard, that it alone is sufficient to tear the skin and the flesh, without the assistance of either teeth or claws. His strength lies more in the head, jaws, and fore-legs, than in the posterior parts of his body. He sees in the night, like the cats. His sleep is short, and he is easily awaked. But it is a mistaken notion, that he sleeps with his eyes open.

The ordinary pace of the lion is bold, grave, and slow, though always oblique. His course consists not of equal movements, but is performed by leaps and bounds; and his motions are so brisk, that he cannot instantly stop, but generally surpasses his aim. When he leaps on his prey, he makes a spring of twelve or fifteen feet, falls above the victim, seizes it with his fore-feet, tears it in pieces with his claws, and then devours it with his teeth. While young and nimble, he lives by hunting, and seldom quits the deserts or the forests, where he finds plenty of wild animals for his subsistence. But, when he grows old, heavy, and less fit for the exercise of hunting, he approaches frequented places, and becomes more dangerous to man and the domestic animals. It has, indeed, been remarked, that, when

when he sees men and animals together, he attacks the latter, and never the former, unless any person strikes him; for, in this case, he is wonderfully alert in distinguishing the man who hurts him; and he instantly quits his prey to take vengeance on the offender. It is alledged, that he prefers the flesh of the camel to that of all other animals. He is likewise very fond of young elephants. As they are unable to resist him till their tusks are grown, he accomplishes his purpose with ease, unless the mother come to their assistance. The elephant, the rhinoceros, the tiger, and the hippopotamus, are the only animals which can resist the fury of the lion.

This animal, however formidable, is hunted with large dogs, supported by men on horseback, who dislodge him, and make him retire. But both the dogs and the horses require to be previously trained; for most animals tremble and fly from the odour of the lion. His skin, though of a close and firm texture, resists neither a ball nor a javeline. He is seldom, however, killed with a single blow. He is often taken, as we take wolves, by making him fall into a deep pit, covered with limber materials, and upon which a live animal is fixed. The lion becomes gentle as soon as he is seized; and, if advantage be taken of the first emotions of his surprise and shame, he may be chained, muzzled, and conducted at pleasure.

The flesh of the lion has a strong and disagreeable flavour ; yet it is frequently eat by the Indians and Negroes. The skin, which was formerly the robe of heroes, serve these people for a mantle or a bed. They also preserve the grease, which is of a penetrating nature, and even of some use in medicine *.

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* See L'hist. Nat. des Animaux, par Mess. Arnaud de Nobleville et Salerne, tom. 5. part. 2. p. 112.

Plate CX



LION.

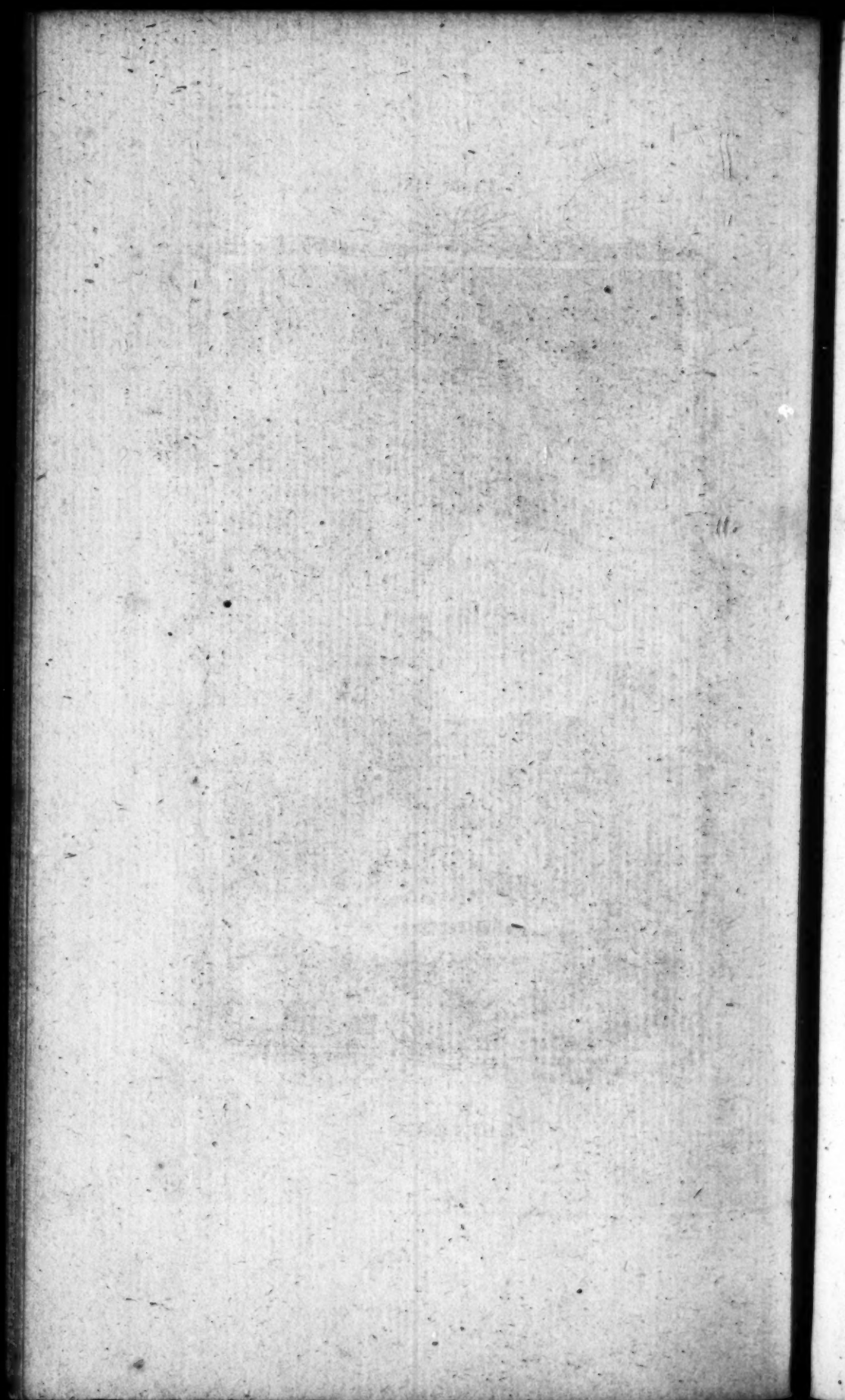


Plate CXI.



LIONESS.

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O F T I G E R S.

TIGER being a generic name given to several animals of different species, we shall begin with distinguishing them from each other. The leopards and panthers, which are so often confounded, have both been called *Tigers* by most travellers. The ounce, a small species of panther, which is easily tamed, and used for hunting in the East, has been mistaken for the panther, and received the general denomination of *Tiger*. The lynx, and the lion's provider, by the Turks called *Karackoulah*, and by the Persians *Siyahgush*, have sometimes also received the appellation of *Panther* or of *Ounce*. All these animals are common in Africa, and in the southern regions of Asia. But the true tiger is a rare animal, little known to the ancients, and not well described by the moderns. Aristotle makes no mention of the tiger: Pliny only observes of him, that he is an animal of astonishing fleetness*; and adds, that he was much more rarely to be met with than the panther, because Augustus first presented a tiger to the Romans at the dedication of the theatre of Marcellus, while Scaurus the Ædile presented 150 panthers†, and afterwards Pompey exhibited 410, and Augustus

420,

* Animal tremendae velocitatis; *Plin. Hist. Nat. lib. 8. c. 14.*

† *Plin. Hist. Nat. lib. 8. c. 17.*

420, at the public spectacles of Rome. But Pliny gives not a single mark by which the tiger is to be distinguished: Oppian * and Solinus, who wrote after Pliny, appear to have been the first who take notice, that the tiger is characterized by long stripes, and the panther by round patches. This is indeed one of the marks which distinguish the true tiger not only from the panther, but from several other animals which have been called tigers. Strabo † quotes Magasthenus on the subject of the true tiger, who tells us, that, in India, there are tigers twice as large as the lion. Thus the only information we have from the ancients, concerning this remarkable animal, is that he is extremely ferocious and fleet; that his body is marked with long stripes; and that he exceeds the lion in magnitude. The moderns, as Gesner and other naturalists, who mention the tiger, have added nothing to the little that had been observed by the ancients.

All those skins which have short hair and roundish and distinct spots, have been called tigers skins; and travellers, deceived by this false denomination, have indiscriminately named every ferocious animal, thus spotted, by the appellation of *tigers*. The academy of sciences were likewise

* See Oppian, lib. 1. de venatione, ubi ait: Orynges alios decorari taeniis oblongis tigrum instar, alios vero rotundis ut panthera.—Tigres, ait Solinus, bestias insignes maculis notae, et pernicitas memorabiles reddiderunt, fulvo nitent, hoc fulvum nigricantibus segmentis inter-undatum.

† Strab. lib. 15.

wife misled by this prejudice; and, to all the spotted animals they dissected, though very different from the genuine tiger, they have given the same denomination.

The most general cause of the multiplication of equivocal and vague terms in natural history has arisen, as shall be more fully shown in the following article, from the necessity of giving names to the unknown productions of the New World. Many animals, merely from some slight resemblances to those of the old Continent, though very different, both in species and dispositions, have had the same names imposed on them. The error of calling every spotted animal a *tiger*, began in Europe, and was transported to America, where it was doubly augmented. For spotted quadrupeds being discovered in this new country, they were instantly called *tigers*, though they neither belonged to the species of the true tiger, nor to any of those Asiatic or African animals which had falsely received that name. Hence, in place of one species of tiger, their number has been increased to nine or ten; and, consequently, the history of these different animals has been greatly embarrassed, what belongs to one species being often ascribed to another.

To dispel the confusion arising from these false denominations, especially among the animals which have been commonly called tigers, I shall give a comparative enumeration of quadrupeds, in which

90 ANIMALS PECULIAR

I shall distinguish, 1. Those which are peculiar to the Old World, and existed not in America upon its first discovery; 2. Those which are peculiar to the New, and were unknown in the Old World; 3. Those which are common to both continents, without being transported by men from the one to the other. For this purpose, we must collect into one view what lies scattered in the works of the first historians of America.

ANIMALS PECULIAR TO THE OLD WORLD.

As the largest animals are best known, and liable to the fewest uncertainties, we shall, in this enumeration, trace them nearly in the order of their magnitude.

Elephants are peculiar to the Old World; the largest are produced in Asia, and the smallest in Africa. They are natives of the warmest regions; and, though they are capable of existing, yet they cannot multiply, in temperate climates. Even in their native country, they do not propagate, after being deprived of their liberty. Though entirely confined to the warm regions of the Old Continent, their numbers are considerable. In America, there is not an animal that can be compared to the elephant, either with regard to figure or magnitude.

The same remark is applicable to the rhinoceros, whose species is much less numerous than that of the elephant. He is peculiar to the deserts

ferts of Africa, and to the forests of the southern regions of Asia; and no American animal has the smallest resemblance to him.

The hippopotamus inhabits the banks of the large rivers of India and Africa. His species is perhaps still less numerous than that of the rhinoceros; and he is not to be found in America, nor in the temperate climates of the Old World.

The camel and dromedary, which are so common in Asia, in Arabia, and in all the eastern regions of the Old Continent, were equally unknown in America as the elephant, the rhinoceros, and the hippopotamus. The appellation of *camel* has been given to the Lama * and Pacos † of Peru, though these animals are so different from the camel, that, by some, they have been called *sheep*, and by others *camels* of Peru, and though the pacos has nothing in common with our sheep, but the wool, and the lama resembles the camel by the length of its neck only. The Spaniards formerly transported real camels to Peru ‡: But the climate of this New World was not favourable to these animals; for, although

* *Camelus glama*, corpore laevi, topho pectorali; *Linn. Syst. p. 91.* *Camelus pilis brevissimis vestitus; Brisson. regn. anim. p. 56.* *Ovis Peruana; Marcg. hist. Brasil. p. 243.*

† *Camelus Pacos*, tophis nullis, corpore lanato; *Linn. Syst. Nat. p. 91.* *Camelis pilis prolixis toto corpore vestitus; Brisson. Regn. anim. p. 57.* *Ovis Peruana pacos dicta; Marcg. hist. Brasil. p. 244.*

‡ See *Hist. nat. des Indes par Jos. Acosta*, p. 44—208. *l'Hist. des Incas*, tom. 2. p. 266.

though they produced, their numbers were never considerable.

The giraffe *, or camelopard, an animal remarkable for its height, and the length of its neck and fore-legs, is not to be found in America. It is a native of Africa, particularly Ethiopia, and has never spread beyond the Tropics into the temperate regions of the Old World.

We have seen, in the preceding article, that the lion exists not in America, and that the Puma of Peru is an animal of a different species. We shall likewise find, that the tiger and panther are peculiar to the Ancient Continent, and that the animals of South America, which have received these names, are different species. The true tiger is a terrible animal, and perhaps more to be dreaded than the lion himself. His ferocity is tremendous; and we may judge of his strength by his size, which is commonly from four to five feet high, by nine, ten, thirteen or fourteen feet long, without comprehending the tail. His skin is not variegated with round spots, but with black bands on a yellow ground, which extend transversely over the whole body, and form rings on his tail from one end to the other. These characters are sufficient to distinguish the tiger from all the carnivorous animals of the New World, the largest of which scarcely exceed the size of our mastiffs or grey-hounds.

The
* Giraffa quam Arabes Zurnapa, Graeci et Latini Camelopardalus nominant; *Bellon, Obs.* p. 118.

The leopard and panther of Africa and Asia, are not nearly so large as the tiger, and yet they are much larger than the rapacious animals of South America. Pliny, whose testimony cannot be questioned, as panthers were in his time exposed in great numbers at the public shews of Rome, points out the essential characters of this animal, by telling us, that his hair is whitish, and every where variegated with black spots, resembling eyes *: He adds, that the female differs from the male in nothing but the superior whiteness of her hair. The American animals which have been called *tigers*, have a greater similarity to the panther: From the latter, however, they differ so much, that it is easy to perceive they belong not the same species.

The first is the *jaguar*, *jaguara*, or *janowara*, and is a native of Guiana, Brasil, and other regions of South America. Ray, with some plausibility, named this animal the *pard* †, or *lynx* of Brasil. The Portuguese called him *once* or *anca*, because they had given that name improperly, first to the lynx, and afterwards to the small panther of India. The French, without reason, have called it a *tiger* ‡; for it has no affinity to that animal.

* *Pantheris in candido breves macularum oculi varias . . . et pardos, qui mares sunt appellant in eo omni genere creberimo in Africa Syriaque, quidam ab iis Pantheras candore solo discernunt, nec adhuc aliam differentiam inveni; Plin. Hist. Nat. lib. 8. cap. 17.*

† *Pardus an Lynx Brasiliensis, jaguara dicta; Marcgrav. Ray, Synops. quad. p. 166.*

‡ *Gros tigre de la Guiane; Desmarchais, tom. 3. p. 299. Le Tigre d'Amerique; Brisson. regn. anim. p. 270.*

animal. It differs also from the panther in the size of its body, the figure and situation of its spots, the colour and length of its hair, which is crisped when young, and is always rougher than that of the panther. Neither does it resemble this animal in its dispositions and manners; it is more savage, and cannot be tamed. These differences, however, hinder not the jaguar of Brasil from resembling the panther more than any other animal of the Old World. The second we shall call *cougvar*, by contracting the Brazilian name *cuguacu-ara**, pronounced by the natives *Cougouacou-ara*. The French have, with still more impropriety, called this animal the *red tiger*. It resembles the true tiger in nothing, and differs very much from the panther, its hair being of a red colour, and without spots. The form of the head is likewise different, and the muzzle is longer than those of the tiger and panther. A third species, which has also obtained the name of *tiger*, and is equally removed from that species with the preceding animals, is the *jaguarrete*†. This animal is nearly of the same size with the jaguar, and resembles him in natural dispositions; but differs from him in some external characters. He has been called the *black tiger*, because his hair is blackish, interspersed

* *Cuguaca-ara*; *Pison. Hist. Nat. Ind.* p. 104. *Le Tigre rouge*; *Barrere, Hist. Fr. equin.* p. 165.; *Briffon, Regn. anim.* p. 272.

† *Juguarrete*; *Pison. Hist. Nat. Ind.* p. 103. Once, a species of tiger; *Desmarchais, tom. 3. p. 300.* The black tiger; *Briffon. Regn. anim.* p. 271.

sed with spots still blacker than those of the jaguar. Beside these three species, and perhaps a fourth, commonly called tigers, there is another American animal that has a greater resemblance to the tiger, namely, the mountain cat, which is related both to the cat and panther, and is more properly marked by this compound appellation, than by its Mexican name *tlacooscotl**. It is smaller than the jaguar, jaguarete, or couguar, but larger than the wild cat, which it resembles in figure, though its tail is much shorter, and its hair variegated with black spots, which are oblong on the back, and circular on the belly. The jaguar, jaguarete, couguar, and mountain cat, are therefore American animals, which have improperly been named *tigers*. We have seen the couguar and mountain cat alive, and know them to be very different in species; but they are still more different from that of the tiger and panther. With regard to the puma and jaguar, it is evident, from the descriptions of those who have seen these animals, that the puma is not a lion, nor the jaguar a tiger. Thus we may pronounce with confidence, that the lion, the tiger, and even the panther, are not to be found in America; neither are the elephant, the rhinoceros, the hippopotamus, the giraffe, nor the camel. All these species require a warm climate, for the purpose of propagation; and, having never inhabited northern

* Hernández Hist. Mex. p. 512. Chat-pard; *Hist. de l'Acad. des sciences*, tom. 3. part. 1. p. 109.; *Briffon, Regn. anim.* p. 273.

thern regions, they could not convey themselves to America. This general fact is too important not to be supported by every proof that can be produced: We shall, therefore, continue our comparison of the animals of the Old World with those of the New.

Every man knows that horses, when first transported to America, struck the natives not only with surprise, but with terror; and that these animals have thriven and multiplied as fast in America as in Europe *. The same remark applies to the ass, from which mules have been produced, that are more useful for every kind of carriage than the Lama, particularly in the mountainous parts of Chili and Peru.

The zebra † is an animal peculiar to the Old World, and which, perhaps, has never been seen in the New. It seems to be confined to a particular climate, and is found no where but in that part of Africa which extends from the Equator to the Cape of Good Hope.

Horned cattle were found neither in the islands nor on the continent of South America. Soon after the discovery of these countries, bulls and cows were transported from Europe by the Spaniards. In 1550, they for the first time labour'd the ground with oxen in the valley of Cusco ‡. These animals multiplied prodigiously on the Continent,

* *Hist. gen. des Antilles, par Tertre, tom. 2. p. 289.*

† Zebra; *Ray. Synops. quad. p. 69. Edwards, p. 27. Brisson. Regn. anim. p. 101. Asne Sauvage; Kolbe, tom. 3. p. 22.*

‡ *Hist. des Incas, tom. 2. p. 266.*

Continent, as well as in the islands of St Domingo, Cuba, &c.; and even became wild in several places. The species of horned cattle, which we call Bison, found in Mexico, Louisiana *, &c. belongs not to the European race. The bison existed in America before our horned cattle were transported thither. He is so different from the latter, that he may be regarded as constituting a separate species. He has a fleshy protuberance between his shoulders; his hair is softer than wool, longer on the fore-part of his body than the hind, and curled upon the neck and along the spine of the back. It is of a brown colour, obscurely marked with some whitish spots. The bison has, besides, short legs, which, like the head and neck, are covered with long hair. The male has a long tail, terminating in a bush of hair, like that of the lion. Though these distinctions have appeared to me, as well as to all other naturalists, sufficient to constitute the bison and our horned cattle of different species, yet I will not presume to determine this point; because the essential characteristic of animals being of the same species is the faculty of a regular and uninterrupted propagation of their kinds; and this fact, with regard to the bison and our horned cattle, has never hitherto been subjected to the test of experiment. Mons. de la Nux, counsellor of the royal council of the island of Bourbon, has favoured me with a letter, dated 9th October 1759, in which he informs me, that the bison propagates

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* Hist. de Nouveau Monde, par Jean Laet, liv. 10. ch. 4.

with the common horned cattle; and, it were to be wished, that persons living in these countries would imitate the example of this gentleman, in making experiments upon animals. It would be easy for the inhabitants of Louisiana to try to make the American bison copulate with the European cow, or the European bull with the female bison. Such commixtures might, perhaps, be fruitful; and, in that case, it would be ascertained that the European horned cattle, the bunch-backed species of the island of Bourbon, the East-India bull, and American bison, constitute but one species. From the experiments of Mons. de la Nux, it is apparent, that the bunch is not an essential character, because, after some generations, it entirely vanishes. Besides, I have discovered that this bunch or protuberance which appears on the camel as well as the bison, is a common, but not a permanent character, and ought to be regarded as an accidental variety, depending, perhaps, on the constitution of the body; for I have seen a meagre sickly camel which had no vestige of a bunch. The other character of the American bison, namely, long soft hair, appears to be a difference arising only from the influence of climate, in the same manner as we observe its effect on our goats, cats, and rabbits, when compared to those of Angora, which, though very different with regard to their hair, are nevertheless of the same species. Hence it is probable (especially if the American bison produces with European cows) that our horned

cattle

cattle must formerly have passed from the northern regions contiguous to those of North America, and that, having afterwards spread into the temperate regions of the New World, they assumed with time the impressions of the climate, and became real bisons. But, till this essential character of generation be fully established, we must still conclude, that our cow and bull is a species peculiar to the Ancient Continent, and existed not in America till they were transported thither.

America has still less pretensions to the sheep *. These animals were transported from Europe, and have succeeded both in the warm and temperate climates. But, though equally prolific, they are commonly more meager †, and their flesh less succulent and tender than that of the European sheep. The climate of Brasil seems to be most favourable to them; for that is the only region of the New World where they become excessively fat ‡. Both European and African sheep have been transported to Jamaica §, and have equally succeeded. These two species belong entirely to the Old Continent.

Neither is the goat a native of America. The numerous flocks now found there have all proceeded from those which were transported. At Brasil, the goat has not multiplied so fast as the sheep §. When first carried to Peru by the Spaniards,

* Hist. des Incas, tom. 2. p. 322.

† Pison. Marcgrav.

‡ Hist. de Nouv. Monde, par Jean Laet, liv. 15. chap. 15.

§ Ovis Guineensis seu Angolensis; Marcgrav. lib. 6. cap. 10. Ray, Synops. quad. p. 75. Sloane's hist. of Jamaica.

§ Hist. de Nouv. Monde, lib. 15. cap. 15.

niards, goats were so rare, that they sold for 110 ducats a-piece*; but they afterwards became so numerous, that they brought little more than the value of the skin. In that country, they produce three, four, and sometimes five kids at a time, while, in Europe, they produce one or two only. The large and small American islands are equally replenished with goats as the Continent. They have even been carried by the Spaniards to the islands of the South Sea; and, in the island of Juan Fernandez †, particularly, they have been extremely fertile. But, as they furnished provisions to the pirates who afterwards infested these seas, the Spaniards resolved to extirpate them from the island; and, for this purpose left a number of dogs, which, having likewise multiplied in their turn, destroyed the goats in every accessible part of the island, and became so ferocious, that they actually attacked men.

The wild boar, the domestic hog, and the hog of China, which constitute but one species, and multiply so plentifully in Europe and Asia, are not natives of America. The Mexican hog, which has an aperture in its ‡ back, is the animal in America that approaches nearest to the common species. I have seen it alive, and have attempted, in vain, to make it produce with the European

* Hist. des Incas, tom. 2. p. 322.

† Anson's voyage.

‡ Tajacu; *Pison. Ind.* p. 98.—Tajacu, apud Mexicanus moschiferus; Ray, *Synops. quad.* p. 97.—Le Sanglier du Mexique; *Briffon, Regn. quina.* p. 111.

European sow. Their characters, besides, are so different, that there is reason to pronounce them of a different species. The hogs transported from Europe to America have succeeded better, and multiplied faster, than the sheep or goat. The first swine, says Garcilasso *, sold at Peru still dearer than the goats. The flesh of the ox and sheep, according to Pison †, is not so good at Brasil as in Europe; but the hogs are better, and multiply faster; and Laet remarks ‡, that those of St Domingo have also improved so as to exceed those of Europe. In general, it is allowed, that, of all domestic animals transported from Europe to America, the hog has most universally succeeded. In Canada, as well as in Brasil, which includes the coldest and warmest climates of the New World, the hogs produce and multiply, and their flesh is equally good. The goat, on the contrary, has multiplied in the warm or temperate countries only, and cannot maintain the species in Canada: It is for this reason, that, though numbers of them are brought from Europe, they still continue to be rare in that country. The ass, which multiplies in Brasil, Peru, &c. is unable to multiply in Canada, where neither mules nor asses, though many couples of the latter have been from time to time transported thither, are to be seen. The cold seems to deprive them of that vigour of constitution, that

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natural

* Hist. des Incas, tom. 2. p. 266.

† Pison. hist. nat. Brasil.

‡ L'Hist de nouveau monde, par Jean Laet, chap. 4. p. 5.

natural ardour, by which, in warm climates, they are so much distinguished from other animals. Horses have multiplied nearly in an equal manner over all the regions of America. They appear to have diminished in size only *. But that is common to them with all the other animals brought from Europe to America; for, in Canada, the ox, the goat, the sheep, the hog, the dog, are smaller than in France; and, what is still more singular, all the native American animals are, in general, much smaller than those of the Old Continent. In this New World, Nature seems to have operated upon a smaller scale: Man alone has been copied after the same model. But, before mentioning the facts which support this observation, we must finish our enumeration.

The hog, as we have seen, is not a native of America, but was transported thither; and he has not only multiplied there in a domestic state, but has become wild in many places, where he multiplies in the woods, like our wild boars †, without the aid of man. A species of hogs, different from those of Europe, have likewise been transported from Guiney to Brasil ‡, where they have increased. This Guiney hog, which is smaller than the European kind, has long pointed ears, and a tail that almost trails on the ground. It is not covered with bristles, but with short hair, and

* Sir Hans Sloane's hist. of Jamaica.

† L'Hist. nat. des Indes, par Joseph Acoſta, p. 44.

‡ Piſon. hist. nat. Brasil.

and appears to be a distinct species from that of Europe; for we have never learned from Brasil, where the ardour of the climate favours every kind of propagation, that the two species have intermixed, or even produced mules.

The dog, whose races are so various, and so universally diffused, appears not in America but by a kind of specimens, which it is difficult to compare with the whole species. At St Domingo, there were small animals called *gosques*, which resembled little dogs. But Garcilasso affirms, that they had no dogs similar to those of Europe. He adds *, that the European dogs, which had been transported to Cuba and St Domingo, and became wild, had diminished the number of cattle, which had also become wild; and that these dogs hunt in packs of ten or twelve, and are equally destructive as the wolves. There are no genuine dogs, says Joseph Acosta †, in the west Indies, but only animals resembling small dogs, called *alcos* in Peru, and which attached themselves to their masters, and had nearly the same dispositions with the dog. If Father Charlevoix ‡ merits credit, who quotes no authority, ‘the *goschis* of St Domingo were small dumb dogs, which served for the amusement of the ladies ||. They were

* L’Hist. des Incas, tom. 2. p. 322.

† L’Hist. nat. des Indes, p. 46. l’Hist. du Nouveau Monde, par Jean Laet, lib. 10. chap. 5.

‡ L’Hist. de l’Isle Saint Domingue, par le Pere Charlevoix, tom. 1. p. 35.

|| Were there any ladies in St Domingo when it was discovered?

‘ were also used for hunting other animals by
 ‘ the scent. They made excellent eating *, and
 ‘ were a great supply to the Spaniards when the
 ‘ first famines happened; so that, if great numbers
 ‘ had not afterwards been brought from the con-
 ‘ tinent, the species would have been exhausted.
 ‘ There were several kinds of them; the hair of
 ‘ some was smooth and shining; others had their
 ‘ bodies covered with very soft wool; and the
 ‘ greatest number had only a kind of tender,
 ‘ thin down. The varieties in their colour sur-
 ‘ passed even those of our dogs.’

If ever this species of *goschis* existed, with the qualities ascribed to it by Father Charlevoix, why has it been passed over in silence by other authors? And why do not these animals, which, according to him, were not only spread over the island of St Domingo, but several places of the Continent, no longer subsist? Or, if they do subsist, why have they lost all their beautiful peculiarities? It is probable, that the *goschis* of Charlevoix, whose name he never met with but in the writings of Father Pers, is the *gosques* of Garcilasso. Perhaps, likewise, the *gosques* of St Domingo, and the *alco* of Peru, are the same animal; and it seems to be certain, that this animal is more allied to the European dog, than any other American quadruped. Some authors have regarded it as the genuine dog. Jean Laet † says,

* The flesh of the dog is by no means good for eating.
 † L'Hist. du Nouveau Monde, par Jean Laet, lib. 15. chap. 15.

in express terms, that, upon the discovery of the West Indies, they employed for hunting a kind of small dogs, which were absolutely mute. It was remarked, in the history of the dog *, that, in warm climates, he loses the faculty of barking. But this loss is supplied by a sort of howling; and they are never, like these American animals, perfectly mute. Dogs transported from Europe have thriven almost equally well in the hottest and coldest climates of America, and they are more esteemed by the savages than any other animal †. In warm countries, they have lost their voice; in cold regions, their size is diminished; and, almost every where, their ears have become erect. Hence they have degenerated, or rather mounted up to their primitive race, which is that of the shepherd's dog, which has erect ears, and barks less than any other kind. Dogs may, therefore, be regarded as belonging solely to the Old Continent, where their nature and talents are unfolded in the temperate regions only, and where they seem to have been variegated and brought to perfection by the care of man; for, in all uncivilized and very hot, or very cold countries, they are equally small, ugly, and almost mute.

The hyaena ‡, which is of the size of the wolf, was known to the ancients. It is remarkable

* See vol. 4. art. *Dog*.

† L'Hist. du Nouveau Monde, par Jean Laet, liv. 15. chap. 15. p. 513.

‡ *Hyæna Aristotelis; Hist. anim.*—*Dabuch Arabum; Charleton Exer. p. 15.*

able for an orifice and glands, situated, as in the badger, between the anus and tail, from which proceeds a strong fetid odour. He is likewise remarkable for his strong mane, which runs along the neck and shoulders, and for an enormous voracity, which incites him to dig up bodies from the graves, and devour the most putrid flesh. This horrible creature is found in Arabia only, and other southern provinces of Asia. It exists not either in Europe or in the New World.

The jackall, which, of all animals, makes the nearest approach to the dog, though he differs in essential characters, is very common in Armenia and Turkey, and is likewise found in several other provinces of Asia and Africa*. But he is an absolute stranger to America. He is remarkable for the colour of his hair, which is a brilliant yellow: He is about the size of a fox; and, though the species is very numerous, it has never reached Europe, nor even the north of Asia.

The genet†, which is a native of Spain, would never have passed undiscovered, if it had existed in the New World. But, as no American historians or travellers make any mention of him, he must be considered as peculiar to the Old Continent. He inhabits the southern parts of Europe, and those of Asia under the same latitude.

Though

* See the art. *Jackal*.

† See the art. *Genet*.

Though the civet has been said to be found in New Spain; yet it seems not to be the civet of Africa and the Indies, from which we derive the musk, and which is mixed and prepared with that of the animal called *biam* in China; for we consider the true civet to be an animal peculiar to the southern regions of the Old Continent, which has never reached the northern provinces, and could not pass over to the New.

Cats as well as dogs were entire strangers to America; and, though I have quoted a passage, from which it appears that a person in the train of Christopher Columbus killed a wild cat in those new regions*; yet I am persuaded that these animals had then no existence there. I was not, at that time, equally skilled in the many abuses made of names; and I acknowledge, that I am not yet so well acquainted with animals, as to distinguish them clearly in the false or misapplied appellations given them by travellers. Neither is this surprising, since our nomenclators, whose researches have been entirely directed to this point of view, instead of throwing light upon the subject, have increased the confusion, by other names and phrases adapted to their arbitrary arrangements, which are always more deceitful than actual inspection. The natural propensity of comparing objects, which we see for the first time, to those already known,
joined

* See vol. 4. art. *Cat.*

joined to the almost insuperable difficulty of pronouncing American names, are the two causes of this misapplication of terms, which has been productive of so many errors. It is easier, for example, to call a new animal *a wild boar**, or *a black hog*, than to pronounce his American name, *quauh-coyamelt*; to call another an *American fox*†, than to preserve his Brazilian name *tamandua-guaca*; to call those animals *Peruvian sheep* or *camels*, which, in the language of the natives, are denominated *pelou jebialt-oquitli*‡. In the same manner, the *cabiai*, *cabionara*, or *capybara*, is called the *water-hog*§, though it be an animal very different from the hog; and the *carigueibiju* is called *an otter*. The same confusion has been introduced into almost all the animals of the New World, whose names were so strange and barbarous to the Europeans, that they endeavoured to bestow others upon them derived from resemblances, sometimes happily imagined, with the animals of the Old Continent, but often borrowed from relations too remote to justify such denominations. Five or six species of small animals were regarded as hares, for no other reason,

* See le voyage de Desmarchais, tom. 3. p. 112.; l'Essai sur l'hist. nat. de la France équinoxiale, par Barrere; l'hist. de Mexique par Hernandez, p. 637.; l'hist. de la Nouvelle Espagne, par Fernandez, p. 8.

† Desmarchais, tom. 3. p. 307.

‡ Hernandez, hist. du Mexique, p. 660.

§ Desmarchais, tom. 3. p. 314.

reason, but because, like the latter, their flesh was very good. An animal without horns was called *a cow*, or *an elk*, which the Americans denominated *tapiierete* at Brasil, *manipouris* at Guiana, and it was called *anta* by the Portuguese, though it had no other relation to the cow or elk than a slight resemblance in the form of the body. Some others compared the *pak* or *paca* to the rabbit, and others to a hog of two months old *: Some considered the *oppossum* as a rat, and called it *the wood-rat*; and others took it for a small *fox* †. But it is unnecessary here to expose, at greater length, the false denominations bestowed by travellers, historians, and nomenclators, upon the American animals; because I shall endeavour, in a subsequent part of this discourse, to point them out and to correct them.

We have seen, that all our domestic animals, and the largest species of the wild animals of Africa and Asia, had no original existence in the New World. Several species likewise, of less consideration, belong not to America, which we shall enumerate as succinctly as possible.

The antelopes, whose species are numerous, and of which some inhabit Arabia, others Africa, and others the East Indies, require a warm climate for subsisting and multiplying. They
never

* L'Hist. du Nouveau Monde, par Jean Laet, p. 484.

† Klein de quad. p. 59. Barrere, hist. de la France equinoxiale, p. 166.

never stretched into the northern parts of Europe, so as to enable them to pass over to America. Hence these African and Asiatic species were not found in the New World. The Barbary antelope seems indeed to have been transported thither, and Hernandez calls it *algazel* * *ex Aphrica*. The animal of New Spain, called by the same author *temamaçame*, by Seba *cervus*, by Klein *tragulus*, and by Briffon, *the antelope of New Spain*, appears to be a different species from all the antelopes of the Old Continent.

It is natural to imagine, that the chamois goat, which delights in the Alpine snows, would not avoid the frozen regions of the north, and might, therefore, have passed over to America; yet it is not to be found there. This animal seems not to affect a peculiar climate, but a particular situation. He is fond of the summits of the Alps, Pyrennees, &c.; and, instead of spreading farther, he has never descended to the plains at the foot of those mountains. This is not the only animal which dwells perpetually in the same climate and situation. The marmot, the wild goat, the bear, and the lynx, are also mountain animals, and rarely appear in the plains.

The buffalo, which is a native of warm climates, and has been rendered domestic in Italy, resembles the American bison less than the ox, and is not found in the New Continent.

The

* Hernandez, hist. du Mexique, p. 512.

The wild goat inhabits the tops of the highest mountains of Europe and Asia; but was never seen on the Cordeliers.

The musk animal *, which is nearly of the size of a fallow deer, inhabits only particular provinces of China, and of the eastern parts of Tartary. The royal antelope, known by the name of the *small stag of Guiney* †, appears to be confined to certain provinces of Africa, the East Indies, &c.

The rabbit, which came originally from Spain, and is now diffused over all the temperate climates of Europe, existed not in America; for the animals called by that name belong to a different species; and all the genuine rabbits in America were transported thither from Europe ‡.

The ferrets, which were brought from Africa into Europe, where they cannot subsist without the care of man, were not found in America. Even our rats and mice were unknown in that continent. But they were transported in our ships ||, and are now prodigiously numerous in all the cultivated countries of the New World.

The following is a pretty exact list of the animals peculiar to the Old Continent, and which had no existence in America previous to its intercourse with Europe: The elephant, the rhinoceros, the hippopotamus, the camelopard, the camel,

* *Hiam*, animal musci; *Boym. Flor. Sinen.*—Animal moschiferum; *Ray, Synops. quad.* p. 127.

† Chevrotain; *Briffon. Regn. animal.* p. 95.

‡ L'Hist. des Incas, tom. 2. p. 322.

|| Id. *ibid.*

camel, the dromedary, the lion, the tiger, the panther, the horse, the ass, the zebra, the ox, the buffalo, the sheep, the goat, the hog, the dog, the hyaena, the jackall, the genet, the civet, the cat, the antelope, the chamois goat, the wild goat, the small Guiney stag, the rabbit, the ferret, the rat, the mouse, the fat squirrel, the garden squirrel, the marmot, the ichneumon, the badger, the fable, the stoat or ermine, the jerboa, the maki, and several species of monkeys, &c. All these animals are peculiar to the Old Continent, as shall be shown, when we give the history of each.

OF ANIMALS PECULIAR TO THE NEW WORLD.

The animals of the New World were equally unknown to the Europeans, as ours were to the natives of America. In the New Continent, the only half-civilized people were the Peruvians and Mexicans. The latter had no domestic animals; but the former had reduced to slavery the lama, the pacos, and the alco, a small creature resembling a little dog. The pacos and the lama, to which Fernandes gives the name of *peruich-catl* *, or *Peruvian cattle*, like the chamois goat, frequent

* *Peruich-catl*; Fernandes, *Hist. Nov. Hisp.* p. 11. *Camelus Peruanus glama dictus*; Ray, *Synops. quad.* p. 145. *Camelus*, seu camelo-congener Peruvianum, lanigerum, *pacos* dictum; *Id. ibid.* p. 147.

frequent the highest mountains only, as those of Peru, Chili, and New Spain. Though they had become domestic in Peru, and, of course, had been spread over the adjacent countries; yet, instead of multiplying in the place of their nativity, their number has diminished since the European cattle, which have succeeded wonderfully in all the southern regions of America, were transported thither.

It is singular, that, in a world almost totally occupied by savages, whose manners approached to those of the brute creation, there should have been no society or correspondence between these savage men and the animals which surrounded them; for no domestic animals appear, without some degree of civilization. Does it not follow, that man, in the savage state, is only a species of animal, incapable of governing others, and, possessing nothing but his individual faculties, employs them for procuring subsistence, and providing for his safety, by attacking the weak, and avoiding the strong animals, without any desire of reducing them to subordination? In every nation, though half-civilized only, we meet with domestic animals. In France, the horse, the ass, the ox, the sheep, the goat, the hog, the dog, and the cat; in Italy, the buffalo; in Lapland, the rein-deer; in Peru, the lama, the pacos, and the alco; in the eastern countries, the dromedary, the camel, other species of the ox, the sheep, and the goat; in the southern regions, the

elephant ; all these have been reduced to servitude, or rather admitted into society ; while the savage, who hardly wishes for the society of his female, either fears or disdains that of other animals. It is true, none of the species we have rendered domestic existed in America. But, if the savages with whom it was peopled had anciently united, and diffused the mutual knowledge and resources of society, they would have subjugated almost all the animals of that country, most of them being of gentle, tractable, and timid dispositions, very few ferocious, and none formidable. Hence these animals have avoided the slavery of a domestic state neither by the fierceness of their nature, nor by the indocility of their dispositions. Their liberty has resulted solely from the weakness of man, whose powers are extremely circumscribed without the aid of society, upon which even the multiplication of his species depends. The immense territories of the New World contained not, upon its first discovery, a greater number of inhabitants than what are to be found in one half of Europe. This scarcity of the human species allowed the other animals to multiply prodigiously. They had fewer enemies and more space : Every circumstance was favourable to their increase ; and each species, accordingly, consisted of a vast number of individuals. But the number of the species, when compared with those of the Old Continent, was not above one fourth, or one third.

If

If we reckon that 200 species of quadrupeds exist in the whole known quarters of the globe *, we shall find above 130 of them in the Old Continent, and less than 70 in the New; and, if we subtract the species common to both Continents, or those which, by their constitution, were able to endure the rigours of the North, and passed by land from the one Continent to the other, the New World cannot claim above 40 native species. In America, therefore, animated Nature is weaker, less active, and more circumscribed in the variety of her productions; for we perceive, from the enumeration of the American animals, that the number of species is not only fewer, but, in general, that all the animals are much smaller than those of the Old Continent. No American animal can be compared with the elephant, the rhinoceros, the hippopotamus, the dromedary, the camelopard, the buffalo, the lion, the tiger, &c. The tapir or *tapiierete* † of Brasil, is the largest quadruped of South America. This animal, the elephant of the New World, exceeds not the size of a calf of six months old, or of a very small mule; for he has been compared to both of these animals, though he has

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no

* Linnaeus, in his last edition, enumerates only 179, and Brisson 260: But more than 60 of these should be retrenched, being only varieties, and not distinct species.

† *Tapiierete Brasiliensibus*; *Pison. Hist. Nat. p. 101.* *Marcgravii Hist. Brasil. p. 229.* *Maypoury, Manipouris*; *Barrere, Hist. Fran. equin. p. 161.* *Le Tapir ou Manipouris*; *Brisson. Regn. anim. p. 119.*—It is named *anta* by the Portuguese.

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no resemblance to either, having neither a whole nor a cloven hoof, but feet irregularly digitated, namely, four toes on the fore-feet, and three on the hind-feet. His body is shaped nearly like that of the hog. His head, however, is proportionally much larger: He has no tusks or canine teeth; and the upper lip is very long and moveable at pleasure. The lama is not so large as the tapir, and he appears to be large only by the length of his neck and legs. The pacos is still a much smaller animal.

The Cabiai *, which, next to the tapir, is the largest animal of South America, exceeds not the size of an ordinary hog. He differs as much as any of the former from all the animals of the Old Continent; for, though he has been called the *marsh* or *river hog* †, he differs from that animal by conspicuous and essential characters. He is digitated, having, like the tapir, four toes on the fore-feet and three on the hind-feet. His eyes are large, his muzzle gross and obtuse, his ears small, his hair short, and he has no tail.

The tajacou ‡ is smaller than the cabiai, and has a greater resemblance to the hog, from which he differs greatly in the structure of his internal parts, as in the form of the stomach and lungs,
&c.

* Capybara Brasiliensibus; *Marcgravii Hist. Brasil. p. 230.*

† *Sus maximus palustris*; *Barrere, Hist. Fr. equin. p. 160.* Cochon d'eau; *Voyages de Desmarchais, tom. 3. p. 314.*

‡ Tajacu; *Pison. Hist. Nat. p. 98.* Tajacu, Caaigoara Brasiliensibus; *Marcgr. hist. Brasil. p. 229.* Coyametl; *Fernandes, Hist. Nov. Hisp. p. 8.*

&c. He has also an open gland on the lower part of his back, which discharges a fetid liquor. He is, therefore, a species different from that of the hog; and neither the tajaou, the cabiai, nor the tapir, are found in any part of the Old Continent. The same thing may be said of the *tamandua-guacu* or *ouariri* *, and of the *ouatirou* †, which we have called *ant-eaters*. These animals, the largest of which is below mediocrity, seem to be peculiar to South America. Their structure is very singular; they have no teeth; their tongue is long and cylindrical, like that of the birds called woodpeckers; the opening of the mouth is so small, that they can neither bite nor hardly lay hold of any thing; but extend their long tongue, and, putting it in the way of the ants, retract it when loaded with these insects, which is the only method they have of procuring nourishment.

The sloth ‡, which the natives of Brasil call *ai* or *hai*, on account of the plaintive cry *ai*, which it perpetually utters, seems likewise to be peculiar to the New Continent. He is still smaller than any of the former, being only about two feet long. He is remarkable for walking slower than the turtle, for having three toes both

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on

* *Tamandua-guacu*, five major; *Pison. Hist. Nat. p. 320.*
Le Fourmiller-tamanoir; *Briffon, Regn. animal. p. 24.*

† *Tamandua minor flavescens*, *ouatirouaou*; *Barrere, hist. Fr. equin. p. 163.*

‡ *Ai ou Paresseux*; *Desmarchais, tom. 3. p. 300.* *Ouaikaré*; *Barrere, Hist. Fr. equin. p. 154.*

on the fore and hind-feet, the fore-legs much longer than the hind ones, a very short tail, and no external ears. Besides, the sloth and the armadillo are the only quadrupeds which have no cutting and canine teeth, but cylindrical grinders only, which are rounded at the extremities, nearly like those of some of the cetaceous animals.

The cariacou of Guiana is an animal of the nature and size of our largest roebucks. The male has horns which fall off annually, and the female has none. At Cayenne, he is called the *wood-hind*. There is another species, called the *little cariacou*, or *marsh-hind*, which is considerably smaller than the former, and the male has no horns. From the resemblance of the name, I suspected that the cariacou of Cayenne might be the *cuguacu**, or *cougouacou-apara* of Brasil; and, having compared the descriptions given by Piso and Marcgrave of the cougouacou, with the characters of the cariacou, which I had alive, it appeared to be the same animal, but, at the same time, so different from our roebuck, that it ought to be regarded as a distinct species.

The tapir, the cabiai, the tajacou, the anteater, the sloth, the cariacou, the lama, the pacos, the bison, the puma, the jaguar, the cougar, the juguarète, the mountain-cat, &c. are the largest animals of the New Continent. The middle

* Cuguaca-ete, Cuguaca-apara; *Pison. hist. nat. p. 97.* Marcgrav. *hist. Brasil. p. 235.* Biche des Paletuviers, Biche des bois; *Barr. hist. Fr. equin. p. 151.*

middle sized and smaller kinds are the gouandous *, or cuandus, the agoutis, the coatis, the pacos †, the opossum ‡, the Indian hogs, the cavies §, and the armadillos §, which, I believe, are all peculiar to America, though our latest nomenclators mention a species of armadillo in the East-Indies, and another in Africa. For the existence of these, we have only the testimony of the describer of the cabinet of Seba, which is not an authority that merits credit; for errors arising from the names of countries are very common in collections of natural objects. An animal is purchased under the name of the *Ternate*, or *American bat*, another under that of the *East-India armadillo*. They are immediately announced under these appellations in the description of this collection, and are adopted into the lists of our nomenclators. But, when examined more closely, these Ternate, or American bats, are found to be French

* Cuandu Brasiliensibus; *Pison. hist. nat. p. 99. Marcgrav. hist. Brasil. p. 233. Gouandou; Barr. hist. Fr. équin. p. 153. Chat epineux; Desmarchais, tom. 3. p. 303. Le porc-épic d'Amerique; Brisson. Regn. anim. p. 129.*

† Paca; *Pison. hist. nat. p. 101. Paca Brasiliensibus; Marcgr. hist. Brasil. p. 224. Ourana, Pak; Barrère, hist. Fr. équin. p. 152.*

‡ Carigüya Brasiliensibus; *Marcgrav. hist. Brasil. p. 222. Opossum; Jean Laet, p. 82. Le philandre; Brisson. Regn. anim. p. 286.*

§ Apera Brasiliensibus; *Marcgrav. hist. Brasil. p. 223. Le lapin du Brasil; Brisson. Regn. anim. p. 149.*

§ Tatou, Armadillo, Ayotochtli; *Hernandes, hist. Mex. p. 314.*

French bats *, and the Indian or African armadillos may likewise belong to America.

We have not hitherto mentioned the ape tribes, because their history demands a particular discussion. The word *ape* is a generic name applied to a great number of species; it is not, therefore, surprising, that many of them are said to be found in the southern regions of both Continents. But, we must now inquire whether the apes of Asia and Africa are the same with the American animals to which that name has been applied, and whether, out of more than thirty species, which we have examined alive, there be a single one of them common to both Continents.

The satyr †, or man of the wood, whose figure differs less from that of a man than of an ape, is peculiar to Africa and the South of Asia, and exists not in America.

The gibbon ‡, whose fore-legs, or hands, are as long as the whole body, including the hind-legs, is found in the East-Indies, but not in America. These two apes have no tails.

The

* See vol. 4. of this history, art. BAT. *Seba*, vol. 1. p. 47. where the figure of the African armadillo is represented, and p. 62. where that of the Indian armadillo is given.

† *Satyrus Indicus*, Ourang-outang Indis, et Homo sylvestris dictus; *Charleton*, *Exer.* p. 16. L'homme de bois; *Briffon*, *Regu. Anim.* p. 189.

‡ This ape, which we have seen alive, and which was brought from Pondicherry to M. Dupleix, is not mentioned by any Nomenclator.

The ape*, properly so called, whose hair is of a greenish colour, mixed with a little yellow, and has no tail, is a native of Africa, and some other parts of the Old Continent, but not of the New. The same thing may be said of the *cynocephali*, or dog-headed apes, of which there are two or three species. Their muzzle is not so short as that of the former; but they have no tail, or it is so short as scarcely to be visible. All the apes which have no tail, particularly those with short muzzles, and whose face, of course, greatly resembles that of man, are the genuine apes; and the five or six species we have mentioned are all natives of the warm climates of the Old Continent, and are found in no part of the New. Hence we are authorised to affirm, that there are no true apes in America.

The baboon†, an animal larger than a dog, and whose body is contracted like that of the hyaena, is very different from the apes formerly mentioned. His tail is very short, and always erect; his muzzle is long, and broad at the extremity; his buttocks are naked, and of a blood colour; his legs are very short, and his nails strong and sharp. This animal, which has great strength, and is very mischievous, is found only in

* *Simia Simpliciter dicta*; Ray, *synops. quad.* p. 149.

† *Papio*; Ray, *synops. quad.* p. 158. *Babio*; *Charlston, Exer.* p. 16. *Cebus-papio*, Baboon, *Hyaena Gefneri*; *Klein. quad.* p. 89. *Babuin*; *Mém. de Kolbe, tom. 3.* p. 55. *Briffon. Regn. anim.* p. 192.

in the southern deserts of the Old Continent, and not in America.

Hence all the apes which have no tails, and all those whose tails are remarkably short, belong solely to the Old Continent; and, of those with long tails, almost all the large kinds are found in Africa. There are a few of a middle size in America; but the animals, called *little monkeys with long tails*, are very numerous in the New World. These little monkeys, are the *sapajous* *, the *sagouins* †, the tamarins, &c. When we give the particular history of these animals, it shall be shown that all the American monkeys are different from those of Africa and Asia.

The makis ‡, of which we know three or four species, or varieties, make a near approach to the monkeys with long tails, having, like them, hands, but longer and sharper muzzles, and are also peculiar to the Old Continent. Thus all the animals of Africa and the south of Asia, which have received the names of *apes* or *monkeys*, are not to be found in America, any more than the elephant, rhinoceros, or tiger.

The more minutely we inquire into this subject, we will be the more convinced that the animals of the southern regions of the one Continent existed not in the other, and that the few
which

* Monkeys with prehensile tails.

† Monkeys with straight, but not prehensile tails.

‡ Mancauco's. *Simia sciurus lanuginosus, fuscus, &c.* *Gazophil. Petiver. tab. 17. fig. 5.* *Prosimia fusca, le maki; Brisson, Regn. anim. quad. p. 220.*

which are now found there, were transported by man, as the Guiney sheep, which has been carried to Brasil; the Guiney-pig, which was brought from Brasil into Guiney, and, perhaps, some other small animals, the transportation of which was facilitated by the commerce and small distance of these two parts of the globe. Between the coast of Guiney and that of Brasil, there are about 500 leagues of sea; and there are more than 2000 between the coast of Peru and the East Indies. All those animals which, from their nature, cannot endure cold climates, and even those which, though they could subsist, cannot produce in such climates, are confined, on two or three sides, by seas which they are unable to traverse, and, on the other, by countries so cold, that they cannot live in them. Hence we ought not to wonder at this general fact, which at first appeared singular, and was never before so much as suspected, namely, that none of the animals which are natives of the Torrid Zone of the one Continent, are to be found in the other.

OF ANIMALS COMMON TO BOTH CONTINENTS.

From the preceding enumeration, it appears, that not only the quadrupeds in the warmest climates of Africa and Asia, but most of those in the temperate regions of Europe, are wanting in America. But several of our animals which can endure

dure cold, and multiply in the northern climates, are found in North America : And, though they differ considerably, we are obliged to acknowledge them to be the same, and to believe that they formerly passed from the one Continent to the other by lands, which are still unknown, or rather have long since been swallowed up by the ocean. This proof, drawn from Natural history, is a stronger demonstration of the almost continued contiguity of these two Continents, than all the conjectures of speculative geographers.

The bears of the Illionois, of Louisiana, &c. appear to be the same with ours ; only the former are smaller and blacker.

The stag of Canada, though less than ours, differs from him only by the greater height of his horns, more numerous antlers, and a longer tail.

The roebuck, which is found in the south of Canada and in Louisiana, is likewise smaller, and has a longer tail than the European kind. The original is the same animal with the elk, though it is not equally large.

The rain-deer of Lapland, the fallow-deer of Greenland, and the caribou of Canada appear to be the same animal. The fallow-deer or stag of Greenland, described and painted by Edwards *, has too great a resemblance to the rain-deer to be regarded as a different species. As to the caribou, though there is no exact description of it; yet, from the marks we have been able to collect

* Nat. hist. of birds, p. 51.

lect, it seems to be the same animal with the rain-deer. M. Brisson † has made the caribou a different species, and refers it to the *cervus Burgundicus* of Johnston. But this *cervus Burgundicus* is an unknown animal, and certainly never existed either in Burgundy or in Europe: It is a simple name that has been given to some uncommon horns of the stag or fallow-deer; or rather M. Brisson may have seen the head of the caribou, whose horns consisted of one straight stem on each side, about ten inches long, with an antler or branch near the base, turned forwards; or the head of a female rain-deer; or a head of the first or second year; for the female rain-deer bears horns as well as the male, though much smaller, and, in both, the direction of the first antlers is forward; and, lastly, in this animal, as well as in all others of the deer kind, the ramifications of the horns are exactly proportioned to the number of years they have lived.

The hares, the squirrels, the hedgehogs, the otters, the marmots, the rats, the shrew-mice, and the moles, are also species common to the two Continents, though, in all these kinds, there is not an American species perfectly similar to those of Europe; and it is extremely difficult, if not impossible, to pronounce with certainty whether they are really different species, or only varieties of the same, changed by the influence of the climate.

The

† Brisson. Regn. animal. p. 91.

The beavers of Europe appear to be the same with those of Canada. Though these animals prefer cold countries, they can subsist, and even multiply, in temperate climates. There are still some of them in France upon the islands of the Rhone. Their number was formerly much greater; and they seem to avoid populous countries more than very warm climates. They never establish their societies but in deserts remote from the habitations of men: And, even in Canada, which may be considered as a vast desert, they have retired far from any of our settlements.

The wolf and fox are also common to both continents. They are found, but with some varieties, in all parts of North America, where there are black foxes and wolves; but all of them are smaller than those of Europe, which is the case with every animal, whether native or transported.

Though the weasel and ermine frequent the cold countries of Europe, they are at least very rare in America; but the pine-weasel, the martin, and the polecat, are more numerous.

The pine-weasel of North America appears to be the same with ours. The vison, or pekan weasel of Canada, has a great resemblance to the martin; and the striped polecat of North America is perhaps only a variety of the European kind.

The American lynx seems to be the same with the European. He prefers cold countries; but

but he likewise lives and multiplies in temperate climates, and generally frequents the forests and high mountains.

The seal, or sea-calf, seems to be confined to northern countries, and is found equally on the coasts of Europe and of North America.

These are nearly all the animals which are common to the Old and New Worlds; and from this number, which is not considerable, we ought, perhaps, to retrench more than a third part, whose species, though apparently the same, may be different in reality. But, admitting the identity of all these species with those of Europe, the number common to the two continents is very small, when compared with that of the species peculiar to each. It is farther apparent, that, of all these animals, it is those only which frequent the northern countries that are common to both Continents; and that none of those which cannot multiply but in warm or temperate climates are found in both worlds.

It is, therefore, no longer a doubtful point, that the two Continents either are, or have formerly been, contiguous towards the north, and that the animals common to both have passed from the one to the other by lands with which we have now no acquaintance. We are led to believe, especially since the discoveries made by the Russians to the north of Kamtschatka, that the lands of Asia are contiguous to those of America; for the north of Europe seems to have
been

been always separated from the New World by seas too considerable to permit the passage of any quadruped. These animals, however, of North America, are not precisely the same with those of the north of Asia; but have a stronger resemblance to the quadrupeds of the north of Europe. It is the same with the animals which belong to the temperate climates. The argali, or Siberian goat, the sable, the Siberian mole, and the Chinese Musk, appear not in Hudson's bay, nor in any other north-west part of the New Continent; but, on the contrary, we find, in the north-east parts of it, not only the animals common to the north of Europe and Asia, but likewise those which appear to be peculiar to Europe, as the elk, the rein-deer, &c. It must, however, be acknowledged, that the north-east parts of Asia are so little known, that we can have no certainty whether the animals of the north of Europe exist there or not.

We formerly remarked, as a singular phaenomenon, that the animals in the southern provinces of the New Continent, are small in proportion to those in the warm regions of the Old. There is no comparison between the size of the elephant, the rhinoceros, the hippopotamus, the camelopard, the camel, the lion, the tiger, &c. and the tapir, the cabiai, the ant-eater, the lama, the puma, the jaguar, &c. which are the largest quadrupeds of the New World: The former are four, six, eight, and ten times larger than the latter.

latter. Another observation brings additional strength to this general fact: All the animals which have been transported from Europe to America, as the horse, the ass, the ox, the sheep, the goat, the hog, the dog, &c. have become smaller; and those which were not transported, but went thither spontaneously, those, in a word, which are common to both Continents, as the wolf, the fox, the stag, the roebuck, the elk, &c. are also considerably less than those of Europe.

In this New World, therefore, there is some combination of elements and other physical causes, something that opposes the amplification of animated Nature: There are obstacles to the developement, and perhaps to the formation of large germs. Even those which, from the kindly influences of another climate, have acquired their complete form and expansion, shrink and diminish under a niggardly sky and an unprolific land, thinly peopled with wandering savages, who, instead of using this territory as a matter, had no property or empire; and, having subjected neither the animals nor the elements, nor conquered the seas, nor directed the motions of rivers, nor cultivated the earth, held only the first rank among animated beings, and existed as creatures of no consideration in Nature, a kind of weak automats, incapable of improving or seconding her intentions. She treated them rather like a stepmother than a parent, by denying

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them the invigorating sentiment of love, and the strong desire of multiplying their species. For, though the American savage be nearly of the same stature with men in polished societies; yet this is not a sufficient exception to the general contraction of animated Nature throughout the whole Continent. In the savage, the organs of generation are small and feeble. He has no hair, no beard, no ardour for the female. Though nimbler than the European, because more accustomed to running, his strength is not so great. His sensations are less acute; and yet he is more timid and cowardly. He has no vivacity, no activity of mind. The activity of the body is not so much an exercise or spontaneous motion, as a necessary action produced by want. Destroy his appetite for victuals and drink, and you will at once annihilate the active principle of all his movements; he remains, in stupid repose, on his limbs or couch for whole days. It is easy to discover the cause of the scattered life of savages, and of their estrangement from society. They have been refused the most precious spark of Nature's fire. They have no ardour for women, and, of course, no love to mankind. Unacquainted with the most lively and most tender of all attachments, their other sensations of this nature are cold and languid. Their love to parents and children is extremely weak. The bonds of the most intimate of all societies, that of the same family, are feeble; and one family has

has no attachment to another. Hence no union, no republic, no social state, can take place among them. The physical cause of love gives rise to the morality of their manners. Their heart is frozen, their society cold, and their empire cruel. They regard their females as servants destined to labour, or as beasts of burden, whom they load unmercifully with the produce of their hunting, and oblige, without pity or gratitude, to perform labours which often exceed their strength. They have few children, and pay little attention to them. Every thing must be referred to the first cause: They are indifferent, because they are weak; and this indifference to the sex is the original stain which disgraces Nature, prevents her from expanding, and, by destroying the germs of life, cuts the root of society.

Hence man makes no exception to what has been advanced. Nature, by denying him the faculty of love, has abused and contracted him more than any other animal. But, before examining the causes of this general effect, it must be allowed, that, if Nature has diminished all the quadrupeds in the New World, she seems to have cherished the reptile and enlarged the insect tribes; for, though at Senegal there are longer serpents and larger lizards than in South America, yet the difference between these animals is not near so great as that which subsists between the quadrupeds. The largest serpent of Senegal is not double the size of the Cayenne serpent.

serpent. But the elephant is perhaps ten times the bulk of the tapir, which is the largest quadruped of South America. With regard, however, to insects, they are no where so large as in South America. The largest spiders, beetles, caterpillars, and butterflies, are found in Cayenne and other neighbouring provinces: Here almost all insects exceed those of the Old World, not in size only, but in richness of colouring, delicacy of shades, variety of forms, number of species, and the prodigious multiplication of individuals. The toads, the frogs, and other animals of this kind, are likewise very large in America. We shall take no notice of birds and fishes; because, as Nature has enabled them to pass from the one Continent to the other, it is hardly possible to distinguish those which are proper to each. But reptiles and insects, like the quadrupeds, are confined to their respective Continents.

Let us now examine why the reptiles and insects are so large, the quadrupeds so small, and the men so cold, in the New World. These effects must be referred to the quality of the earth and atmosphere, to the degree of heat and moisture, to the situation and height of mountains, to the quantity of running and stagnant waters, to the extent of forests, and, above all, to the inert condition of Nature in that country. In this part of the globe, the heat in general is much less, and the humidity much greater. If we compare the heat and cold of every degree of latitude,

latitude, we shall find very considerable differences: At Quebec, for example, which is under the same degree of latitude with Paris, the rivers freeze every year some feet thick; a coat of snow still thicker covers the land for several months; the air is so cold that the birds fly off and disappear during the winter, &c. This difference of heat, under the same latitude in the Temperate Zone, though very considerable, is perhaps still less than the difference of heat under the Torrid Zone. In Senegal, the sun is perfectly scorching; while in Peru, which lies under the same line, an agreeable temperature prevails. The same remark applies to all the other latitudes. The Continent of America is so formed and situated, that every circumstance concurs in diminishing the action of heat. America contains the highest mountains, and, of course, the largest rivers of the world. These mountains form a chain which seems to bound the Continent towards the west, through its whole extent. The plains and low grounds are all situated on this side of the mountains, and run from their bottoms to the sea which separates the Continents on this side. Thus the east wind, which blows perpetually between the Tropics, arrives not in America, till it has traversed a vast ocean, by which it is greatly cooled. Hence this wind is much cooler in Brasil, Cayenne, &c. than at Senegal, Guiney, &c. where it arrives impregnated with the accumulated heat acquired from all the lands and burning sands in its passage

through Asia and Africa. Let us recollect what was remarked concerning the different colours of men, and particularly of the Negroes. It seemed to be demonstrated, that the greater or less degree of a tawny, brown, or black colour, depends entirely on the situation of the climate; that the Negroes of Nigritia, and those of the west coast of Africa, are blackest; because their countries are situated in such a manner, that the heat is always greater than in any other part of the globe, the east wind before its arrival having traversed vast tracts of land; that, on the contrary, the American Indians under the line, are only tawny; and the Brasilians brown, though under the same latitude with the Negroes; because the heat of their climate is neither so great nor so constant, the east wind arriving not till after being cooled by the waters, and loaded with moist vapours. The clouds which intercept the light and heat of the sun, and the rains which refresh the air and the surface of the earth, are periodic, and continue several months in Cayenne, and other regions of south America. This first cause renders all the east coasts of America much more temperate than Africa or Asia: And, after the east wind has arrived in a cool state, in traversing the plains of America, it begins to assume a greater degree of heat, when it is suddenly stopped and cooled by that enormous chain of mountains of which the western part of the New Continent is composed; so that

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it is still colder under the line at Peru, than at Brasil, Cayenne, &c. on account of the prodigious elevation of the land. Hence the natives of Peru, Chili, &c. are less brown, red, or tawny, than those of Brasil. If these mountains were reduced to a level with the adjacent plains, the heat on the western coasts would become excessive, and we would soon find Negroes at Peru and Chili, as well as upon the west coasts of Africa.

Thus, from the situation of the land alone in the New Continent, the heat must be greatly inferior to that of the Old; and I shall now show, that there is likewise a greater degree of moisture in America. The mountains, which are the highest upon the globe, and are opposed to the direction of the east wind, stop and condense all the aerial vapours, and, of course, give rise to an infinite number of springs, which, by uniting, soon form the greatest rivers in the world. Hence in the New Continent, there are more running waters, in proportion to the extent of territory, than in the Old; and this quantity of water is greatly increased for want of proper drains or outlets. The natives having neither stopped the torrents, nor directed the rivers, nor drained the marshes, the stagnating waters cover immense tracts of land, augment the moisture of the air, and diminish its heat. Besides, as the earth is every where covered with trees, shrubs, and gross herbage, it never dries. The transpiration of so many vegetables, pressed close together,

gether, produce immense quantities of moist and noxious exhalations. In these melancholy regions, Nature remains concealed under her old garments, and never exhibits herself in fresh attire; being neither cherished nor cultivated by man, she never opens her fruitful and beneficent womb. Here the Earth never saw her surface adorned with those rich crops, which demonstrate her fecundity, and constitute the opulence of polished nations. In this abandoned condition, every thing languishes, corrupts, and proves abortive. The air and the earth, overloaded with humid and noxious vapours, are unable either to purify themselves, or to profit by the influences of the Sun, who darts in vain his most enlivening rays upon this frigid mass, which is not in a condition to make suitable returns to his ardour. Its powers are limited to the production of moist plants, reptiles, and insects, and can afford nourishment only to cold men and feeble animals.

The scarcity of men, therefore, in America, and most of them living like the brutes, is the chief cause why the earth remains in a frigid state, and is incapable of producing the active principles of Nature. To expand the germs of the largest quadrupeds, and to enable them to grow and multiply, requires all the activity which the sun can give to a fertile earth. It is for the opposite reason, that insects, reptiles, and all the animals which wallow in the mire, whose blood

is watery, and which multiply in corruption, are larger and more numerous in the low, moist, and marshy lands of the New Continent.

When we reflect on these remarkable differences between the old and New World, we are inclined to believe that the latter is actually more recent, and has continued longer than the rest of the globe under the waters of the ocean; for, if we except the enormous western mountains, which appear to be monuments of the highest antiquity which this globe affords, all the low parts of this continent seem to be new lands, elevated and formed by the sediments of waters. In many places, immediately under the vegetable stratum, we find sea shells and madrepores already forming large masses of lime-stone, but which are commonly softer than our free-stone. If this continent be really as ancient as the other, why was it so thinly peopled? Why were almost its whole inhabitants wandering savages? Why did the Peruvians and Mexicans, who had united into society, reckon only two or three hundred years since the existence of the first man who taught them to associate? Why are they still ignorant of the art of transmitting facts to posterity by permanent signs, since they had already discovered a method of conveying their ideas at a distance by tying knots upon cords? Why did they not reduce the lama, the pacos, and other animals, into a domestic state? Their arts, like their society, were in embryo; their talents

talents were imperfect, their ideas locked up, their organs rude, and their language barbarous. Below is a list of animals, whose names are so difficult to pronounce, that it is surprising how the Europeans could submit to the trouble of writing them *.

Hence

* *Pelon ichiatl oquitli*. The lama.

Tapiierete in Brasil, *maypoury* or *manipouris* in Guiana. The Tapir.

Tamandua-guacu in Brasil, *ouariri* in Guiana. The great ant-eater.

Ouatiriouaou, in Guiana. The little ant-eater.

Ouaikaré in Guiana, *ai* or *hai* in Brasil. The Sloth.

Aiotochtli in Mexico, *tatu* or *tatupeba* in Brasil, *chirquinchum*, in New Spain. The Armadillo.

Tatu-ete in Brasil, *tatou-kabassou*, in Guiana. The eight-banded Armadillo.

Macatlchichiltic temamacama. The Antelope of New Spain.

Jiya or *carigueibeju*. The Brazilian otter.

Quaubtla coyamatl or *quapizotl* in Mexico, or *caaigoara* in Brasil. The Mexican hog.

Tlacoozcotl, or *tlalocelotl*. The mountain cat.

Cabionara, or *capybara*. The cabiai, or thick nosed-tapir.

Tlatlaubqui occlotl in Mevoo, *janowara* or *joguara*, in Brasil. The jaguar or Brazilian cat.

Cuguacu arana, or *cuguacu ara*, *cougouacou ara*. The cugar, or brown cat.

Tlaquatzin in Mexico, *acuaré* in Guiana, *carigueya* in Brasil. The opossum.

Hoitzlaquatzin. The porcupine of New Spain.

Cuandu or *gouandou*. The Brazilian porcupine.

Tape-maxtlaton in Mexico, *maragat* or *maracaia* in Brasil. The Cayenne cat.

Quaubtehallotl thliltic or *tlilocotequillin*. The black squirrel.

Quimichpatlan or *assapanick*. An animal resembling the flying squirrel, and is perhaps the same.

Tzquiepatl. The mouffette, or stiffling weasel.

Xelotzcuintli or *cuetlachtli*. The Mexican wolf.

Hence every circumstance indicates that the Americans are new men, or rather men who had been so long separated from their original country, that they had lost every idea of the part of the world from which they had issued; that the greatest part of the continent of America was new land, still untouched by the hand of man, and in which Nature had not time sufficient to accomplish her plans, or to unfold the whole extent of her productions; that the men are cold, and the animals small, because the ardour of the former, and the magnitude of the latter, depend upon the salubrity and heat of the air; and that some centuries hence, when the lands are cultivated, the forests cut down, the courses of the rivers properly directed, and the marshes drained, this same country will become the most fertile, the most wholesome, and the richest in the whole world, as it is already in all the parts which have experienced the industry and skill of man. We mean not, however, to conclude, that large animals would then be produced. The tapir and cabiai will never acquire the magnitude of the elephant or hippopotamus. But the animals transported thither will no longer diminish, as they have formerly done. Man will gradually fill up the vacuities in these immense territories, which were perfect deserts when first discovered.

The first historians of the Spanish conquest, to augment the glory of their arms, have exaggerated

gerated prodigiously the number of the enemies they had to encounter. Can these historians persuade any man of sense, that there were millions of inhabitants in Cuba and St Domingo, when, at the same time, there was neither a monarchy, a republic, nor hardly any society among them; and that in these two large adjacent islands, and at no great distance from the continent, there were only five species of quadrupeds, the largest of which exceeded not the size of a squirrel or a rabbit? Nothing can be a stronger proof of the empty and desert state of nature in these new lands. 'We found,' says Laet, 'in the island of St Domingo, but few species of quadrupeds, as the *butias*, which differs not much from our rabbit, but is only a little smaller, with short erect ears, and a tail like that of a mole; —the *chemi*, which is nearly of the same form with the *butias*, but somewhat larger; —the *molui*, which is smaller than the *butias*; —the *cori*, of equal size with the rabbit; its mouth resembles that of the mole; it has no tail, and its legs are short; some of them are black, but oftener a mixture of black and white; it is a domestic animal, and very tame; —besides a small kind of *dogs*, which were absolutely mute; their number is now much diminished, because the European dogs have destroyed them *.

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* L'Hist. du Nouv. Monde, par Jean Laet, liv. 1. chap. 4. p. 5. L'Hist. de l'île Saint Domingue, par le P. Charlevoix, tom. 1. p. 35.

‘In the islands of St Domingo, Cuba, and the Antilles,’ says Acofta *, ‘there were hardly any of the animals belonging to the continent of America, and not one that refembled thofe of Europe.’ ‘All the fheep, goats, horfes, oxen, and affes,’ remarks Father du Tertre, ‘in the Antilles, in Guadalupe, and in all the French iflands, have been brought there by the people of that nation; for none were carried there by the Spaniards, becaufe the Antilles were then fo thickly covered with wood, that the cattle could find no herbage for their fubfiftence †.’ M. Fabry, who traversed, during fifteen months, the western territories of America, beyond the Miffiffippi, affured me, that he often travelled three or four hundred leagues without feeing a fingle man. All our military gentlemen, who went from Quebec to the river Ohio, and from the Ohio to Louifiana, agree, that a perfon may frequently travel one or two hundred leagues, in the depth of the forefts, and not meet with a fingle family of favages. All thefe testimonies fhew the defert and melancholy ftate of the New Continent, even where the temperature of the climate is moft agreeable. But, what is more directly to our prefent purpofe, they deftroy the pofterior

* L’Hift. nat. des Indes, par Jofeph Acofta, p. 144.

† L’Hift. gen. des Antilles, par le P. du Tertre, tom. 2. p. 289. where the reader will find many articles borrowed from Jofeph Acofta.

rior evidence of our nomenclators, and describers of cabinets, who people the New World with the animals peculiar to the Old, and mark others as natives of particular countries where they never existed. For example, it is certain, that, in St Domingo, there were originally no quadrupeds larger than a rabbit; and, though there had, they would have been devoured by the European dogs, which soon became as wild and ferocious as wolves: However, to the *marac* or *maracai* of Brasil, they have given the name of the tiger-cat* of St Domingo, though it is no where found but on the continent. They have made the scaly lizard, or long-tailed manis of Java, an American animal, called *tatoe* by the Brasilians†, which is peculiar to the East Indies: They maintain, that the civet‡, which is a native of the southern parts of the Old Continent, is found also in New Spain, without considering that a creature so useful, which is reared in several parts of Africa, of the Levant, and the Indies, as a domestic animal, for the purposes of collecting the musk, an important article of commerce, would not have been neglected by the Spaniards, if the civets really existed in New Spain.

But our nomenclators have likewise denied to America some animals to which she has an original title.

* *Felis silvestris Tigrinus in Hispaniola*; Seba, vol. 1. p. 77.

† Seba, vol. 1. p. 88.

‡ Brisson. Regn. anim. p. 258.

title. They have placed the opossum in the East Indies *, and the sloth in Ceylon †, though these animals belong solely to the New World, and are so remarkable, the one for a sac under its belly, in which it carries its young, the other for the extreme slowness of all its movements, that, if they existed in the East Indies, travellers could never have passed them over in silence. Seba relies on the authority of Francis Valentine for the East Indian opossum. But this authority can have no weight; for Francis Valentine was so ignorant of the quadrupeds and fishes of Amboyna, and his descriptions are so bad, that Artedi declares no use can be made of his information.

We pretend not, however, to affirm absolutely, that none of the quadrupeds in the warm climates are common to both continents. Of this we can have no physical certainty, till the whole of them be accurately examined. But it is evident, that none of the large, and very few of the small American animals, exist in the Old Continent. Besides, though there should be some exceptions, which I hardly imagine, they must be limited to a very small number of animals, and could have no influence on the general law which I mean to establish, and which seems to be the only rule for enabling us to acquire a proper knowledge of the animal kingdom. This law, which

* Seba, vol. 1. p. 61. 64.

† Id. *ibid.* p. 54.

which leads us to judge as much by the climate and dispositions of animals, as by their figure and structure, will seldom deceive, and will enable us to avoid or detect a multiplicity of errors. Suppose the question, for example, to be concerning an Arabian animal, as the hyaena, we may safely pronounce that it exists not in Lapland; but we will never maintain, with some naturalists, that the hyaena and glutton are the same animal *, nor with Kolbe, that the cross-fox, which inhabits the most northern regions of the New Continent, is found at the Cape of Good Hope †; and we will find, that this animal is not a fox, but a jackal: Neither should the animal, called by the same author the *earth-bog*, which feeds upon ants, be confounded with the ant-eaters of America: This Cape animal is probably the manis or scaly lizard ‡, which has no other resemblance to the ant-eater, than that of using the same food. In the same manner, if it had been considered, that the rain-deer || is a northern animal, this name would have never been applied to an African antelope. The phoca, or seal, which frequents the seas of the north, ought not to be found at the Cape of Good Hope §. The genet, which is a native of Spain, Asia Minor, &c. and peculiar to the Old Continent,

* Regn. anim. par Brisson, p. 234.

† Descript. du Cap, par Kolbe, tom. 3. p. 62.

‡ Id. ibid. p. 43.

|| Id. ib. p. 128.

§ Brisson, Regn. anim. p. 230. where he says, after Kolbe, that the seal is called a *sea-dog* by the inhabitants of the Cape of Good Hope.

continent, is ranked by Klein under the name of *Coati* *, which is an American animal. The *ysquiepatl* of Mexico, an animal which exhales an offensive odour, and for that reason we shall rank it with the pole-cats, should never be considered as a small fox or badger †. The *Coati mondi* of America should not be confounded, as has been done by Aldrovandus ‡, with the badger-hog, which is always mentioned as an European animal. But I mean not to exhibit all the errors of nomenclators. My aim is to prove, that their blunders would not have been so numerous, if they had attended to the difference of climates; if they had studied the histories of animals, and discovered, as I have done, that those of the southern parts of each Continent are never found in both; and, lastly, if they had abstained from generic names, by which numbers of species, not only different, but very remote from each other, are blended together.

Thus the genuine object of a nomenclator is not to lengthen, but to contract his list, by making impartial inquiries and comparisons. No task can be easier than to peruse all the writers on animals, and to form a table of their names and phrases, which will always be longer in proportion as the labour bestowed in investigation is less: But nothing is more difficult than to ex-

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* Klein. de quad. p. 63.

† Seba, vol. 1. Brisson. Regn. anim. p. 255.

‡ Aldrovand. quad. digit. p. 267.

amine and compare animals with that judgment and discernment, which are necessary to reduce this table to its just dimensions. I again repeat, that there are not in the whole habitable earth above two hundred species of quadrupeds, even including forty different species of monkeys. To each of these, therefore, we have only to allot a proper name; and a very indifferent memory is able to retain two hundred names. For what purpose, then, are quadrupeds arranged into classes, orders, and genera? Methodical distributions are only a kind of scaffolds invented to aid the memory in the recollection of plants, the number of which is so great, their distinctions so minute, and their species so liable to variation, that it is necessary to consider them in bundles or genera, by putting together such as have the greatest similitude to each other. As in all works of genius, what is absolutely useless, is always ill imagined, and often becomes hurtful, instead of giving names to two hundred quadrupeds, we have dictionaries loaded with such a variety of terms and phrases, that it would require more labour to explain, than was spent in composing them. Why employ a phraseological jargon, when we can speak plain language, by pronouncing simple names? Why change all the acceptation of terms, under the pretext of making classes and genera? When a genus is composed of a dozen of animals, under the name, for example, of the *rabbit*, why is not the rabbit itself to be found there, but must
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be sought for under the genus of *bare* *? Is it not absurd, and even ridiculous, to fabricate classes, where genera the most remote are assembled together; for example, to unite in the first, *man* † and the *bat*; in the second, the *elephant* and *scaley lizard*; in the third, the *lion* and the *ferret*; in the fourth, the *hog* and the *mole*; in the fifth, the *rhinoceros* and the *rat*? &c. Such heterogeneous and ill conceived ideas cannot be supported. The works, accordingly, which contain fancies so crude, have been successively destroyed by their own authors. One edition contradicts another, and the whole receives no applause but from tyros and children, who are uniformly the dupes of mystery, to whom the fopperies of method appear to be scientific, and, in fine, who respect their master in proportion to the talent he possesses of representing the clearest and most perspicuous objects under the most abstruse and dark points of view.

By comparing the fourth edition of Linnaeus's work with the tenth, we find, that *man* ‡ is no longer ranked with the *bat*, but with the *scaley lizard*; that the *elephant*, the *hog*, and the *rhinoceros*, instead of being ranked, the first with the *scaley lizard*, the second with the *mole*, and the third with the *rat*, are all associated with the *shrew-mouse* §. Instead of the five orders or classes § of *anthropomorpha*, *ferae*, *glires*, *ju-*

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menta,

* Briffon. Regn. anim. p. 140. 142.

† Linn. syst. nat. Holmiae, 1758, tom. 1. p. 18. 19.

‡ Id. edit. 4. p. 64.

§ Id. ibid. p. 69.

§ Id. ibid. p. 63.

menta, and *pecora*, to which he had reduced all quadrupeds, the author, in this last edition, has split them into seven *, viz. *primates*, *bruta*, *ferae*, *bestiae*, *glires*, *pecora*, *belluae*. From these general changes, we may conceive the many alterations introduced among the genera and species, which last alone have any real existence. He says, that there are two species of men, the *day-man*, and the *night-man*, *homo diurnus sapiens* ; *homo nocturnus troglodites* † ; and that these distinct species should not be regarded as varieties only ‡. Is not this to add fable to absurdity, to represent the ravings of old women, or the falsehoods of credulous travellers, as constituting a principal part in the system of Nature ? Is it not better to be silent with regard to matters of which we are ignorant, than to establish essential characters and general distinctions upon the grossest errors, such as, for example, that, of all animals which give suck, woman alone has a clitoris || ? This is so opposite to the truth, that, of above a hundred different animals which we have dissected, not a single one wanted that organ. But I have dwelt, perhaps, too long on criticisms of this

* Linn. syst. nat. edit. x. p. 16. 17.

† Id. ib. p. 20. 24.

‡ Specimen trogloditae ab homine sapiente distinctissimam, nec nostri generis illam nec sanguinis esse, statura quamvis simillimam dubium non est, ne itaque varietatem credas quam vel sola membrana nictitans absolute negat ; Linn. syst. nat. edit. x. p. 24.

|| Id. ib. p. 24. 25.

this kind, especially as they are not my principal object. I have said enough to guard the reader against errors both of a general and particular kind, which are no where so numerous as in the works of nomenclators ; because, being solicitous to comprehend every thing within the limits of their systems, they are obliged to associate all that they are ignorant of with the little that they know.

From what has been advanced, the following general conclusions may be drawn : That man is the only animated being on whom Nature has bestowed sufficient strength, genius, and ductility, to enable him to subsist and to multiply in every climate of the earth. No other animal, it is evident, has obtained this great privilege ; for, instead of multiplying every where, most of them are limited to certain climates, and even to particular countries. Man is totally a production of heaven : But the animals, in many respects, are creatures of the earth only. Those of one Continent are not found in another ; or, if there are a few exceptions, the animals are so changed and contracted, that they are hardly to be recognised. Is any farther argument necessary to convince us, that the model of their form is not unalterable ; that their nature, less fixed than that of man, may be varied, and even absolutely changed in a succession of ages ; that, for the same reason, the least perfect, the least active, and

the worst defended, as well as the most delicate and heavy species, have already, or will soon disappear; for their very existence depends on the form which man gives or allows to the surface of the earth?

The prodigious *mammouth*, whose enormous bones I have often viewed with astonishment, and which were, at least, six times larger than those of the largest elephant, has now no existence; yet the remains of him have been found in many places remote from each other, as in Ireland, Siberia, Louisiana, &c. This species was unquestionably the largest and strongest of all quadrupeds; and, since it has disappeared, how many smaller, weaker, and less remarkable species must likewise have perished, without leaving any evidence of their past existence? How many others have undergone such changes, either from degeneration or improvement, occasioned by the great vicissitudes of the earth and waters, the neglect or cultivation of Nature, the continued influence of favourable or hostile climates, that they are now no longer the same creatures? Yet the quadrupeds, next to man, are beings whose nature and form are the most permanent. Birds and fishes are subject to greater variations: The insect-tribes are liable to still greater vicissitudes: And, if we descend to vegetables, which ought not to be excluded from animated Nature, our wonder will be excited by
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the quickness and facility with which they assume new forms.

Hence, it is not impossible, that, without inverting the order of Nature, all the animals of the New World were originally the same with those of the Old, from whom they derived their existence ; but that, being afterwards separated by immense seas, or impassable lands, they would, in the progress of time, suffer all the effects of a climate that had become new to them, and must have had its qualities changed by the very causes which produced the separation, and, consequently, degenerate, &c. But these circumstances should not prevent them from being now regarded as different species of animals. From whatever cause these changes, produced by the operation of time and the influence of climate, have originated, and though we should date them from the creation itself, they are not the less real. Nature, I allow, is in a perpetual state of fluctuation : But it is enough for man to seize her in his own age, and to look backward and forward, in order to discover her former condition, and what future appearances she may probably assume.

With regard to the utility of this mode of comparing animals, it is evident, that, independent of ascertaining names, of which some examples have been given, it extends our knowledge of the animal creation, and renders it more certain and perfect ; that it prevents us from ascribing, to American animals, properties which are peculiar

liar to those of the East Indies, only because they have the same name; that, in examining the notices of foreign animals communicated by travellers, it will enable us to distinguish names and facts, and to refer each to its proper species; and, lastly, that it will render the history which I am now composing less defective, and perhaps more conspicuous and complete.

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T H E T I G E R *.

IN the class of carnivorous animals, the lion holds the first rank, and the tiger the second. As the first of a bad genus is always the largest, and has often the best dispositions, the second is generally the most rapacious and destructive. To pride, courage, and strength, the lion adds dignity, clemency, and magnanimity. But the tiger is grossly ferocious, and cruel, without necessity.

* The Tiger has six cutting, and two canine teeth in each jaw; five toes before, and four behind. The claws are sharp, hooked, lodged in a sheath, and may be exerted or drawn in at pleasure. The head is round, the visage short, and the tongue rough. Both the head and body of the tiger are smooth. He has vast strength in his limbs. His colour is a pale yellow, beautifully marked with long stripes of black, pointing from the back to the belly, and others across the thighs. The tail is about one third shorter than the body, and annulated with black. His size is often superior to that of the lion. The *Royal* tiger is of a tremendous bulk. M. de Buffon mentions one that, tail included, was fifteen feet long. Du Halde says, that the Chinese tigers vary in colour, some being white, striped with black and gray; Pennant's *Synops. of quad.* p. 167.

In Latin, *Tigris*; in Italian, *Tigra*; in German, *Tigerthier*.

CHAR. GEN. Dentes primores aequales; Molares, terni. Lingua retrorsum aculeata. Ungues retractiles.—CHAR. SPEC. *Felis tigris*, cauda elongata, corpore maculis omnibus virgatis; Linn. *Syst. Nat.* p. 61.

Tigris; Gesner, *Hist. quad.* p. 936. Ray, *Synops. quad.* p. 165. Klein, *de quad.* p. 78. Plinii, lib. 8. c. 18.

Felis flava, maculis longis nigris variegata. *Tigris*; Brisson, *Regn. anim.* p. 268.

fity. The same thing takes place in all nature, where rank is the offspring of strength. The first, in which all power resides, is less tyrannical than his immediate inferior, who, unable to obtain unlimited power, avenges himself, by abusing that portion of it which he enjoys. Thus the tiger is more to be dreaded than the lion. The latter often forgets that he is the sovereign, or the strongest of all animals. He moves forward with tranquility and steadiness, and never attacks man, unless when provoked. He never runs with precipitation, nor gives chase, but when pressed with hunger. The tiger, on the contrary, though satiated with carnage, seems to be perpetually thirsting for blood. His fury has no intervals, but during the time he is obliged to lie in ambush for prey at the sides of rivers. He seizes and tears to pieces a fresh animal with the same rage that he exerted in devouring the first. He desolates the country which he inhabits, and fears neither the aspect nor the arms of man. He puts to death whole flocks of domestic animals, and all the wild beasts which come in his way: He attacks the young elephant and rhinoceros, and sometimes even ventures to brave the lion.

The form of the body generally accords with the natural disposition. The air of the lion is noble; the height of his limbs is proportioned to the length of his body. His large thick mane, which covers his shoulders, and forms a shade to his

his face, his determined aspect, his grave demeanour, all concur in announcing his proud and majestic intrepidity. The too great length of the body of the tiger, and his disproportionately short limbs, his naked head, his haggard eyes, and his blood-coloured tongue, which always lolls out of his mouth, are marks of ignoble malice and insatiable cruelty. He has no instinct but perpetual rage, a blind and undistinguishing ferocity, which often impells him to devour his own young, and to tear in pieces their mother, when she attempts to defend them. May this excessive thirst for blood never be allayed, till he has destroyed the whole race of monsters which he produces!

It is a fortunate circumstance for the other animals, that the species of the tiger is not numerous, and appears to be confined to the warmest regions of the East Indies. Tigers are found in Malabar, in Siam, in Bengal, the same countries which are inhabited by the elephant and rhinoceros. They are even said to follow the rhinoceros for the purpose of eating his dung*, which both refreshes and purges them. Like him, they frequent the borders of rivers and lakes; for, as blood only augments their thirst, they have often occasion for water, to cool the fervour which consumes them. Besides, they watch
near

* Jac. Bontii Hist. Nat. Ind. Orient. p. 54. Recueil des voyages de la Compagnie des Indes, tom. 7. p. 278. Voyage de Schoutten aux Indes Orientales.

near the waters, the approach of animals, which the heat of the climate obliges to resort thither several times every day. Here they procure their prey, or rather multiply their massacres; for they often leave the creatures they have recently killed, to devour others. They delight in blood, and glut themselves with it till they are intoxicated. They tear the body for no other purpose than to plunge their head into it, and to drink large draughts of blood, the sources of which are generally exhausted before their thirst is appeased.

When, however, the tiger kills large animals, as a horse or a buffalo, he does not tear out their bowels on the spot; but, to prevent interruption, and that he may devour them at leisure, he drags them off to the wood with such incredible swiftness, that his course seems to be hardly retarded by their enormous weight *. This circumstance is sufficient to give an idea of his strength; but it will be rendered still clearer by attending to the dimensions of his body. Some travellers have compared him to the horse †, others to the buffalo ‡, and others have only said that he is much

* Jac. Bontii Hist. Nat. Ind. Orient. p. 53.

† Les voyages de Dellon, p. 104.

‡ The tigers of India, says Boullaye-le-Gouz, are of a prodigious size. I have seen skins of them longer and wider than that of a buffalo. They are sometimes addicted to eat men; and, in many parts of India, no man travels without being well armed, because the tiger, whose figure resembles that of a cat, raises himself on his hind-legs, and leaps upon the person he attacks; *Voyage de la Boullaye-le-Gouz, p. 246. 247.*

much larger than the lion *. But we have authorities more recent, and above all suspicion. We are assured by M. de la Lande-Magon, that he has seen, in the East Indies, a tiger of fifteen feet in length, including the tail, which, supposing it to be four or five feet, the length of the body was at least ten. The skin preserved in the royal cabinet, it is true, exceeds not seven feet from the extremity of the muzzle to the origin of the tail. But the tiger to which it belonged was taken when very young, and was ever afterward confined in a narrow apartment, where the want of exercise and room, the languor and restraint of confinement, and unnatural food, shortened his life, and prevented the proper extension of his body. In the history of the stag †, it was remarked, that these animals, when taken young, and shut up in parks too small, not only never acquired their natural size, but became deformed and ricketty. We likewise learn, from the dissections of every species of animals brought up in houses or court-yards, that their bodies and members, for want of exercise, never acquire their natural dimensions; that such organs as cannot be used, as those of generation, are so minute, in all captive and solitary animals, that it is difficult to discover them. The difference of climate alone may produce the same effects as confinement and want of exercise.

* Prosper. Alp. Hist. Nat. Egypt. p. 237. Wotton, p. 65.

† See Vol. IV. Art. Stag.

cise. Animals peculiar to warm climates, though left at liberty, and well fed, are incapable of multiplying in cold countries: And, reproduction being the natural effect of copious nutrition, it is evident, that, as the former faculty is destroyed, the latter must also be incomplete; and that, in these animals, cold alone is sufficient to restrain the action of the internal mould, and to diminish growth, since it is capable of obliterating the power of reproduction.

It is not, therefore, surprising, that this tiger, whose skin and skeleton is preserved in the royal cabinet, should not have acquired its natural size. The bare inspection, however, of this stuffed skin, and of the skeleton, conveys an idea of a most formidable animal. Upon the bones of the leg, there are rugosities, or impressions, which indicate the attachment of muscles still stronger than those of the lion. These bones are also equally strong, though shorter; and, as formerly remarked, the height of the tiger's legs is not proportioned to the great length of his body. Hence the incredible swiftness ascribed to him by Pliny, and which is implied in the name of the animal*, cannot be attributed to his ordinary movements, nor even to the quickness of a continued course; for it is apparent, from the shortness

* *Tigris* vocabulum est linguae Armeniae; nam ibi et sagitta et quod vehementissimum flumen, dicitur *Tigris*; Varro de lingua Latina—Persae et Medi sagittam *Tigrim* nuncupant; Gesn. hist. quad. p. 936.

shortness of his legs, that he can neither walk nor run † with such celerity as those animals whose legs are proportionally longer. But this prodigious swiftness may, with propriety, be applied to the terrible bounds which he makes without any extraordinary effort; for, if we suppose his strength and suppleness to be proportioned to those of the cat, which he greatly resembles in structure, and which leaps, in an instant, to the distance of many feet, the tiger, whose body is ten times longer, may, nearly in the same instant, leap many fathoms. Hence it is not the celerity of his course, but the quickness of his leap, which Pliny meant to describe, and which renders this animal tremendous, because it is impossible to avoid him, after he makes his spring.

The tiger is perhaps the only animal whose ferocity cannot be subdued. Neither violence nor restraint have any effect in softening his temper. He is equally irritated with gentle or rough treatment. The mild influence of society makes no impression on the obduracy of his nature. Time, instead of mollifying the ferociousness

† The terrible swiftness, says Bontius, ascribed by Pliny to this animal, is an error. On the contrary, he runs slowly; and this is the reason why he more willingly attacks men than swift animals, as the stag, the wild boar, the buffalo, or the wild ox, and why he attacks all animals by ambuscade. He darts with impetuosity upon their heads, and beats the strongest animals to the ground with a single stroke of his paw; *Bont. p. 53.* It is easy to reconcile these facts with the expressions of Pliny.

ness of his humour, only exasperates his rage. With equal wrath he tears the hand which feeds him, as that which is lifted up to strike him. He roars at the sight of every thing that lives. Every object appears to him as a fresh prey, which he devours beforehand with the avidity of his eyes, menaces with frightful groans, and the grinding of his teeth, and often darts upon it, without regarding his chains, which only restrain, but cannot calm his fury.

To complete the idea of the strength of this animal †, we shall give Father Tachard's relation of a combat between a tiger and two elephants. 'A palisade ‡,' says this author, 'of about a hundred paces square, was erected. Into this inclosure two elephants were introduced, for the purpose of fighting a tiger. They were defended by a kind of plastron, in the form of a mask, which covered the head and a part of the trunk. As soon as we arrived, a large tiger was brought out of his lodge. His colour and figure were new to the Frenchmen who were present at this combat; for he was not only much longer and thicker than those we have seen in France, but his skin was differently spotted. Instead of spots scattered
' without

† Indi tigrim elephanto robustiorem multo existimant. Nearchus scribit, indos referre tigrim esse maximæ equi magnitudine, velocitate et viribus bestias omnes superare, elephantum etiam, insipientem in caput ejus, facile suffocare; *Gesn. hist. quad. p. 937.*

‡ Premier voyage de Siam, par le Père Tachard, p. 292.

' without order, he had long, broad, circular
 ' bands, which, arising from the back, joined
 ' below the belly, and were continued along the
 ' tail, in the form of alternate white and black
 ' rings. There was nothing peculiar in his head,
 ' or limbs, except that they were larger than
 ' those of common tigers, though the animal
 ' had not yet acquired his full growth; for M.
 ' Constance informed us, that there were tigers
 ' in that kingdom three times larger; and that,
 ' when hunting along with the king, he had
 ' once seen a tiger nearly as large as the biggest
 ' mule. They have also a smaller kind, like
 ' that brought from Africa to Europe, one of
 ' which I was shown the same day at Luovo.

' The tiger destined for the combat was not
 ' let loose, but was so fixed by two cords, that,
 ' having no liberty to spring, the first elephant
 ' which approached gave him two or three
 ' blows on the back with his trunk. These
 ' strokes were so heavy, that they beat the tiger
 ' to the ground, where he lay for some time as
 ' if he had been dead. But, though this first
 ' attack had abated his fury, he was no sooner
 ' untied, than he gave a horrible roar, and made
 ' a spring at the elephant's trunk, which was
 ' stretched out to strike him. The elephant,
 ' however, dexterously drew up his trunk, pro-
 ' tected it with his tusks, which he presented at
 ' the same time, and with them he threw the
 ' tiger to a great height in the air. The tiger

' was so stunned, that he made no farther ad-
 ' vances, but took several turns round the pali-
 ' sade, and sometimes sprung towards the people
 ' in the galleries. Three elephants were then
 ' set upon him, each of whom, in their turn,
 ' gave him such blows, that he again seemed to
 ' be dead, and afterwards endeavoured only to
 ' avoid his enemies, who would unquestionably
 ' have killed him, if an end had not been put to
 ' the combat.' Even from Father Tachard's
 description, it is plain, that the tiger he saw fight
 with the elephants was the true tiger; that he ap-
 peared to be a new animal to the Frenchmen,
 because they had probably seen, in France, only
 African panthers or leopards, or, rather, the A-
 merican jaguars; and that the small tiger he saw
 at Luovo was nothing but a panther. We may
 likewise conceive, from this simple narrative, the
 amazing strength and ferocity of the tiger.
 ' Though young, and not arrived at his full
 growth, though a captive, and bound with ropes,
 though single against three; yet this tiger was so
 formidable to these enormous animals, that all
 the parts of their bodies which Nature had not
 defended with an impenetrable skin, were ob-
 liged to be covered with plastrons or cushions.

The tiger, of which an anatomical description
 was made by the Jesuits at China, and commu-
 nicated to the academy of Sciences by Father
 Gouie *, seemed to be the genuine tiger, as well

as

* The spotted tiger is the only one known in Europe.
 But

as that called the *Royal Tiger*, mentioned by Perrault *, in his memoirs concerning animals, and of which he says the description was made in Siam. Dellon, in his voyages, mentions expressly, that tigers are more frequent in Malabar than in any other part of the East Indies; that there are several species of them; but that the largest, which is as big as a horse, and called the *Royal Tiger* by the Portuguese, is extremely rare.

The royal tiger, therefore, appears not to be a different species. He is found in the East Indies only, and not in Brasil, as has been alledged by some of our naturalists †. I am even inclined to believe, that the true tiger is peculiar to Asia, and the interior parts of the south of Africa; for, though most travellers who have visited the coasts of Africa mention tigers, yet it is easy to

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perceive,

But in Tartary and China, there are tigers with black bands or belts; and, even in these countries, two species are mentioned, though no other differences appear to exist. The tiger dissected by the Jesuits of China, which had been killed in the chase by the Emperor, along with other four, weighed only 265 pounds, and, consequently, was none of the largest; another of them weighed 400 pounds. The one that was dissected had a third part of his stomach filled with worms, though it is not said that he was in a putrid state. Some of the people who were present remarked, that they had observed the same appearance in a tiger which was dissected at Macao; *Hist. de l'Acad. des Sciences, année 1699, p. 51.*

* Mem. pour servir a l'hist. des anim. part 2. p. 287.

† Voyages de Dellon, p. 104.

‡ Regn. anim. Brisson. p. 269.

perceive, from their descriptions, that they are not genuine tigers, but leopards, panthers, ounces, &c. Doctor Shaw remarks *, that, in the kingdoms of Tunis and Algiers, the lion and panther hold the first rank among the rapacious animals ; but that the tiger is not found in this part of Barbary. Doctor Shaw's observation seems to be just ; for they were Indian, not African ambassadors †, who presented to Augustus, when at Samos, the first tiger that was ever seen by the Romans. It was also from India that Heliogabulus procured those tigers with which he wished to have his chariot drawn, when he wanted to personate the god Bacchus.

Thus the species of the tiger has always been more rare and less diffused than that of the lion. The female, however, like the lioness, produces four or five cubs at a litter. She is furious at all times ; but her rage rises to the utmost extremity, when robbed of her young. She then braves every danger ; she pursues the plunderers, who are often obliged to release one, in order to retard her motion. She stops, takes it up, and carries it off to the nearest cover ; but she instantly returns, and continues the pursuit after the spoilers to the very gates of their villages, or to their boats. When all hope of recovering them is lost, she expresses the exquisiteness of her

* Shaws travels.
par Dapper, p. 206.

† Descript. des Isles de l'Archipel.

her sorrow by dismal and hideous howlings, which excite terror wherever they reach.

The tiger, like the lion, moves the skin of his face, grinds his teeth, and roars; but the sound of his voice, which has, by some travellers, been compared to that of certain large birds *, is different. *Tigrides indomitae raucant, rugiuntque leones*; (*Autor Philometae*). The word *raucant* has no synonyme in English. It is expressive of a hoarse and frightful cry †.

The skin of these animals is much esteemed, especially in China. The military mandarines, in their public marches, cover their sedans, and likewise their pillows, during the winter, with tigers skins. In Europe, these skins, though rare, are not much valued. Those of the leopard of Guiney and Senegal, called *tigers skins* by our furriers, are preferred. Besides, the skin is the only use that can be derived from this most noxious of all quadrupeds. His sweat ‡, and the hair of his whiskers §, are alledged to be certain poisons to man and other animals. But he does so much real mischief when alive, that it is needless to ascribe imaginary evils to

L 3

his

* Second voyage de Siam, par le P. Tachard, p. 248.

† The tigers of the eastern regions of Asia are remarkably large and swift. Their general colour is a reddish yellow. Their roar, like that of the lion, raises horror in the hearer; *Voyage de Coreal*, tom. 1. p. 173.

‡ Hist. Nat. de Siam, par Gervaise, p. 36.

§ La Chine illustrée, par Kircher, p. 110.

his remains ; for the Indians eat his flesh, and find it neither unwholesome nor disagreeable ; and, if a pill composed of his whiskers is mortal, this effect is produced by the sharpness and roughness of the hair, which acts on the stomach in the same manner as small needles.

The

Plate CXII.



TIGER.

The PANTHER, OUNCE, and LEOPARD.

TO remove all ambiguities, arising from the use of improper names, or other causes, let it be remarked, that, beside the tigers, whose history and description I have already given, Asia and Africa afford other three species of this genus, all different from the tiger, and from each other. These three species are the *Panther*, the *Ounce*, and the *Leopard*, which naturalists have not only confounded with one another, but with species of the same genus peculiar to America. Of the latter I shall here take no notice, but confine myself solely to those of the Old Continent.

The first species is the Panther *, which was known to the Greeks by the name *Pardalis*, to the ancient Latins by that of *Panthera* and *Pardus*,

* The generic characters of the panther are the same with those of all the cat kind.—The panther has smooth short hair, of a bright tawny colour. The back, sides, and flanks are elegantly marked with black spots, disposed in circles from four to five in each, with a single black spot in the centre. In the face and legs there are single spots only. On the top of the back there is a row of oblong spots, the largest nearest the tail. The chest and belly are white, the first being marked with transverse dusky stripes. On the tail and belly the black spots are irregular. The ears are short and pointed; the end of the nose is brown; and the limbs are very strong.

dus, and to the more modern Latins by that of *Leopardus*. The body of this animal, when arrived at full growth, is five or six feet long, measuring from the extremity of the muzzle to the origin of the tail, which is more than two feet. The basis of the colour upon the back and sides is of a more or less deep yellow, and that of the belly is whitish. He is marked with black spots, which are circular, or in the form of a rose, detached from each other upon the sides, hollow in the middle, and most of them have several lesser spots, in their center, of the same colour. These spots, of which some are oblong, and others circular, are frequently three inches in diameter. The spots on the head, breast, belly, and legs, are entire.

The second species is the little panther of Oppian *, to which the ancients have assigned no particular name; but modern travellers have called it *Ounce*, from the corrupted term *Lynx* or *Lunx*. We shall adopt the name *Ounce* †, because

strong. The skin of one I measured, was, from the extremity of the nose, to the origin of the tail, six feet ten inches long, and the tail near three; *Pennant's synopsis of quad. p. 170.*

Felis pardus, cauda elongata, corpore maculis superioribus orbiculatis, inferioribus virgatis; Linn. Syst. Nat. p. 61.

Panthera, pardus, pardalis, leopardus; Gesner. quad. p. 824. Raii Synopsis quad. p. 166 Klein. quad. p. 77.

* Oppian de venatione, lib. 3.

† The ounce has a large head, short ears, and long hair on the whole body, of a whitish ash-colour, tinged with yellow, which is fainter in the breast and belly. It is marked with small

OUNCE, AND LEOPARD. 169

cause the animal has some affinity to the lynx. The ounce is much smaller than the panther, being only about three feet and a half long, which is nearly the size of the lynx. The length of the hair exceeds that of the panther, as well as that of the tail, which is sometimes more than three feet in length, though the body of the ounce is, upon the whole, one third less than that of the panther, whose tail is only about two feet and a half. The ground colour of the ounce is a whitish gray upon the back and sides, and the gray is still whiter on the belly. But the back and sides of the panther are always of a more or less deep yellow colour. The spots are nearly of the same figure and size in the one as in the other.

The third species is peculiar to Senegal, Guiney, and other southern regions, which had not been discovered by the ancients; and, of course, they had no knowledge of this animal, which we shall call the *Leopard*, a name that has been improperly

small round spots. There is a large black spot behind each ear. The upper part of the neck is varied with large single spots; the sides of the back with longitudinal marks, consisting of several spots almost touching each other, leaving the ground colour of the body in the middle. The spots beneath these are irregular, large, and full. Those on the legs are small and thinly dispersed. The tail is full of hair, and irregularly marked with large black spots. This species is of a strong make, being long backed and short legged. The length from the nose to the tail is about three feet and a half, and that of the tail is upwards of three feet; *Pennant's Synops. of quad. p. 175.*

properly applied to the great panther. The leopard* is larger than the ounce, but much less than the panther, seldom exceeding four feet in length. The tail is two or two and a half feet long. The ground colour of the hair, upon the back and sides, is yellow; that of the belly is whitish. The spots are annular, or like roses, but much smaller than those of the panther and ounce, and most of them are composed of four or five small spots: Some of the latter are irregularly disposed.

These three species, as we have seen, are perfectly distinct. The merchants call the skins of the first species, *panther skins*, those of the second, which we have denominated the *ounce*, *African tigers skins*, and those of the third, or leopard, though very improperly, *tigers skins*.

Oppian† was acquainted with the panther and ounce; of the former he remarks, that there were two kinds, the one large and the other small, though the form of their bodies, and the disposition of the spots, were similar; but that they differed in the length of their tail, which

* The hair of the leopard is of a lively yellow colour, marked on the back and sides with small spots, disposed in circles, and placed pretty closely together. The face and legs are marked with single spots. The breast and belly are covered with longer hairs than the rest of the body, of a whitish colour. The spots on the tail are large and oblong. The length of this species, from nose to tail, is four feet, and that of the tail, two and a half.

† Oppianus de venatione, lib. 3.

which was longer in the small than in the large species. The Arabs call the great panther *Nemer*, and the smaller kind *Phet* or *Phed*, which last, though a little corrupted, is the same with *Faadhb*, and is the real Barbary name of this animal. 'The *Faadhb*,' says Dr Shaw *, 'resembles the leopard, (he means the panther), by having the same spots; but they differ in other respects; for the skin of the former is darker and coarser, and he is not so ferocious as the latter.' Besides, we learn from a passage of Albert, commented upon by Gefner †, that the *Phet* or *Phed* of the Arabs, is denoted, in Italian, and some other European languages, by the word *Lcunza* or *Lonza*. Hence it is evident, that the small panther of Oppian, and the Arabian *Phet* or *Phed* ‡, the Barbary *Faadhb*, and the European *Onze* or *Ounce*, are the same animal, which is also probably the *Pard* or *Pardus* of the ancients, and the *Panthera* of Pliny; for he says, that the ground colour of the panther || was white, but that of the great panther, as formerly observed, is yellow. It is, besides, probable, that the small panther was called simply *Pard* or *Pardus*, and that they afterwards named the large panther

* Shaw's travels. *Nota*, The English *a* is pronounced like the French *ai*, which brings Dr Shaw's *Faadhb*, pronounced *Faidhb*, still nearer to the *Fhed*.

† Gefner. hist. quad. p. 825.

‡ *Alphed*, id est, leopardus minor; *Albertus*.

|| *Pantheris in candido breves macularum oculi*; *Plin. Hist. Nat. lib. 8. cap. 18.*

panther *Leopard*, or *Leopardus*; because they imagined it was a mongrel species, increased in size by mixing with that of the lion. But, as there is no foundation for this fancy, we have preferred the simple and primitive name *panther*, to the modern compound one, *Leopard*, which last we have applied to a new animal, that has hitherto been mentioned under equivocal appellations only.

Thus the ounce differs from the panther by being smaller, having a longer tail, and also longer hair, of a whitish gray colour; and the leopard differs from both the panther and ounce, by his brilliant yellow robe, though more or less deep; by the smallness of his spots; and by their being disposed in groups, as if each of them were formed by the union of four or five.

Pliny *, and several posterior authors, say, that the robe of the female panther was whiter than that of the male. This may be true of the ounce: But we have observed no such distinction in the panthers kept at Versailles, which were drawn from the life. Hence, if there is any difference between the male and female, it can neither be constant nor sensible. We have indeed perceived shades more or less strong, in some skins of these animals; but it is probable that this difference depends more on the difference of age or of climate than upon that of sex.

* Plinii Hist. Nat. lib. 8. cap. 18.

The animals described and dissected by the gentlemen of the Academy of Sciences*, under the name of *Tigers*, and that described by Caius†, in Gefner, under the name of *Uncia*, are of the same species with our leopard. Of this not a doubt can remain, after comparing our figure and description with those of Caius and M. Per-rault. The latter, indeed, says, that the animals described and dissected by the gentlemen of the Academy under the appellation of *tigers*, were not the ounce of Caius. But the only reasons he assigns are, that the ounce is smaller, and is not white under the belly. However, if M. Per-rault had compared the description of Caius with the subjects he examined, I am persuaded that he would have perceived no difference between them and the ounce of Caius. But, as some doubts may still remain, I shall here relate the most essential parts of Caius's description, which, though made upon a dead animal, appears to be very exact‡. It may be remarked, that Caius, without

* Memoires pour servir a l'histoire des animaux, part 3. p. 3.

† Gefner. Hist. quad. p. 825.

‡ *Uncia fera est faevissima, canis villatici magnitudine, facie et aure leonina: corpore cauda, pede, et unge felis, aspectu truci: dente tam robusto et acuto, ut vel ligna dividat: unge ita pollet, ut eodum contra nitentes in adversum retineat: colore per summa corporis pallescentis ochrae, per imia cineris, asperfo undique macula nigra et frequenti, cauda reliquo corpore aliquanto obscuriori et grandiori macula. Auris intus pallet sine nigro, foris nigricat sine pallore, si u-*
nam

without giving the precise dimensions of the animal's body, says, that it is larger than the shepherd's dog, and as thick, though it be shorter, as the bull-dog : I cannot conceive, therefore, how M. Perrault should have said, that the ounce of Caius was much smaller than the tigers dissected by the gentlemen of the Academy. These animals, from the extremity of the muzzle to the origin of the tail, measured only four feet in length. The leopard which we have described,

nam flavam et obscuram maculam è medio eximas—Reliquam caput totum est maculosum frequentissima macula nigra, (ut et reliquum corpus), nisi ea parte quae inter nasum et oculum est, quae nullae sunt, nisi utrinque duae, et eae parvae : Quemadmodum et ceterae omnes in extremis et imis partibus, reliquis sunt minores : Maculae in summis quidem crurum partibus, et in cauda, nigriores sunt et singulares, per latera vero compositae, quasi singulae maculae ex quatuor fierent. Ordo nullus est in maculis nisi in labro superiori, ubi ordines quinque sunt. In primo et superiori duae discretae : In secundo sex conjunctae, ut linea esse videantur. Hi duo ordines liberi sunt, nec inter se commisti. In tertio ordine octo conjunctae sunt, sed cum quarto ubi finit commiscuntur.—Nasus nigrescit, linea per longitudinem perque summam tantum superficiem indurata leniter ; oculi glauci sunt—Vivit ex carne : Foemina mare crudelior est et minor : Utriusque sexus una ad nos ex Mauritania est advehta nave. Nascuntur in Libya. Si quod illis coeundi statum tempus est, hic mensis Junius est ; Nam hoc mas foeminam supervenit.—Ista animalia tam ferocia sunt, ut cultos cum primo vellet de loco in locum movere, cogebatur fuisse in caput actio (ut aiunt) semi-mortua reddere.—Quod scribunt esse cane longius, id mihi non videtur : Nam sunt apud nos multi canes villatici, qui longitudine aequent : Pecuario tamen et major est et longior, ut et villatico humilior ; Caius apud Gesner. *Hist. quadrup. pag. 825. et 826.*

bed, and which is unquestionably the same animal with the tigers of M. Perrault, was likewise about four feet long; and, if we measure a bull-dog, and particularly a mastiff, we will find that he often exceeds these dimensions. Thus the tigers described by the gentlemen of the Academy differ not so much in size from the ounce of Caius, as to justify M. Perrault's conclusion, that they were not the same animal. The second difference is that of the colour of the hair on the belly, which M. Perrault says is white, and Caius ash-coloured, that is, whitish. Hence these two characters, which induced M. Perrault to think that the tigers dissected by the gentlemen of the Academy were not the ounce of Caius, should have led him to the opposite conclusion, especially if he had attended to the rest of the description, which perfectly agrees. We must, therefore, regard the tigers of the gentlemen of the Academy, the ounce of Caius, and our leopard, as the same animal; and I cannot conceive how some naturalists should have mistaken M. Perrault's tigers for American animals, and confounded them with the jaguar.

I consider it, therefore, as certain, that the tigers of Perrault, the uncia of Caius, and our leopard, are the same animal, and that our panther is the same with the panther of the ancients; for, except in the size, our panther agrees with the ancient in every other character; and this in-
considerable

considerable difference may be safely ascribed to confinement and want of exercise. This difference of dimensions at first perplexed me. But, after a minute comparison of the large skins fold by the furriers with that of our panther, there could be no longer any doubt that they were the very same creatures. The panther we have described, as well as other two of the same species, kept at Versailles, came from Barbary: The two first were presented to his Majesty by the regency of Algiers, about twelve years ago; and the third was purchased by the King from an Algerine Jew.

Another remark must be made. Of the three animals above described under the appellations of the *panther*, the *ounce*, and the *leopard*, not a single one can be referred to the animal which naturalists have indicated by the name of *pardus* or *leopardus*. The *pardus* of Linnaeus, and the *leopard* of Brisson, which appear to be the same animal, are defined in the following manner: *Pardus, felis cauda elongata, corporis maculis superioribus orbiculatis, inferioribus virgatis*; Syst. Nat. p. 61. *Leopardus, felis ex albo flavicans, maculis nigris in dorso orbiculatis, in ventre longis, variegata*; Regn. anim. p. 272. This character, of long spots on the inferior parts of the body, belongs neither to the panther, the ounce, nor the leopard; and yet it is the panther of the ancients, the *panthera*, *pardalis*, *pardus*, *leopardus* of Gesner, the *pardus*, *panthera* of Prosper Alpinus;

nus; in a word, the panther found in Africa and the East-Indies, which these authors mean to point out by the above definitions. From the accurate researches I have made, I am perfectly satisfied that these three animals, and, perhaps, a fourth, to be afterwards mentioned, which likewise has not this character of long spots on the belly, are the only species of this genus to be found in Asia or Africa. We must, therefore, hold this character of our nomenclators to be fictitious; for, in all the animals of this kind, both in the Old and New Continent, when they have long spots, these spots are uniformly situated on the superior parts of the body, as the neck and back, and never on the inferior parts.

I must again remark, that the animal described in the third part of the *Memoires pour servir a l'histoire des animaux*, p. 3. is neither the panther, the ounce, nor the leopard, of which I am here treating.

In fine, when perusing the writings of the ancients, the *panther* should not be confounded with the *panthera*. The *panthera* is the animal we have described; but the *panther* of Homer and other authors, is a kind of timid wolf, perhaps the jackal, as shall be explained in the history of that animal. Besides, the word *pardalis* is the ancient Greek name of the true panther, and is applied indiscriminately to both male and female. The word *pardus* is more modern, being first used by Lucan and Pliny. *Leopardus*

is still less ancient; for it appears to have been first employed by Julius Capitolinus: And *panthera* was derived from the Greek by the ancient Latins, but never used by the Greeks themselves.

After dispelling the darkness with which nomenclators perpetually obscure Nature, after removing every source of ambiguity, by giving exact figures of the three animals of which we are treating, we shall now proceed to remark what is peculiar to each of them.

The panther, which we have examined alive, has a ferocious air, a restless eye, a cruel aspect, brisk movements, and a cry similar to that of an enraged dog, but stronger and more hoarse. He has a rough and very red tongue, strong and pointed teeth, hard sharp claws, a beautiful skin, of a more or less deep yellow colour, variegated with black circular spots, or united in the form of roses, and short hair. The upper part of the tail is marked with large black spots, and with rings of black and white toward the extremity. He is of the size and make of a mastiff dog, but his legs are not so long.

The relations of travellers agree with the testimonies of the ancients, as to the large and small panther, that is, our panther and ounce. It appears, that there now exist, as in the days of Oppian, in that part of Africa which extends along the Mediterranean, and in those parts of Asia that were known to the ancients, two species of panthers, and most travellers have called the

the larger the *panther* or *leopard*, and the smaller the *ounce*. They all agree, that the ounce is easily tamed, that he is trained to hunting, and employed for this purpose in Persia, and several other provinces of Asia; that some ounces are so small, that a horseman carries them on the crupper behind him; and that they are so gentle as to admit of being handled and caressed*. The

M 2 panther

* The Persians have a quadruped called the *ounce*, whose skin is spotted like that of a tiger; but he is very tame and gentle. A horseman carries it on a truss behind him; and, when he perceives an antelope, he makes the ounce descend, which is so nimble, that, in three bounds, it leaps on the neck of the antelope, though the latter runs with incredible swiftness. The antelope is a small species of roe-deer, which are very numerous in this country. The ounce soon kills the antelope with his sharp teeth. But, if he misses his blow, and the antelope escapes, he remains fixed on the spot, in a confused and mortified condition. In these moments of distress and disappointment, an infant may apprehend him, without the least resistance; *Voyage de Tavernier, tom. 2. p. 26.*

In great hunting matches, the Persians train ferocious animals to the chase, as lions, tigers, leopards, panthers, and ounces; the latter of which are called *youzze*. They do no injury to man. A horseman carries one behind him, with its eyes covered by a cloth, and it is fixed by a chain. When the hunter perceives any game, he uncovers the animal's eyes, and turns its head to the prey. If he spies it, he darts upon it with great bounds, throws himself upon it, and brings it to the ground. If, after making a few leaps, he misses his object, he is discouraged, and commonly stops. The hunter takes him up, and consoles him with caresses.—I saw, in the year 1666, this kind of hunting in Hyrcania.—Some of these trained animals hunt with great dexterity, creeping on their bellies through hedges and brushwood till they are near their prey, and then darting upon them; *See Voyage de Chardin en Perse, &c. tom. 2. p. 32. Voyage autour du*

panther seems to be of a more fierce and untractable nature. Man may be said rather to subdue than to tame him. He never loses entirely his ferocious disposition *; and, when destined for the

du monde de Gemelli Carreri, tom. 2. p. 96. 212. where, however, this author seems to have borrowed many things from Charadin.

Quo tempore perveni Alexandriam, duos pardos. . . vidi apud Antonium Calepium. . . usque adeo cicures erant et mansueti, ut semper in lectulis decumbentes dormiebant—Carne eos nutriebat: Saepe a nobis cum pardo ibatur ad venandas gazellas, et pugnam inter ipsos pulcherrimam quae fiebat admirabamur, praesertim gazellae artificium cum pardo cornibus durissimis armatae pugnando, sed eam tamen multo fatigatam atque ex pugna admodum defessam interimebat. Cairi postea vidimus quandam mulierem quinque catulos recentes a panthera effusos, ex Arabe coemisse, eosque ut feles aluisse.—Erant omnino visu pulcherrimi, albicabant colore maculis parvis rotundis toto corpore variati—Parum quidem differentiae inter pardum et pantheram observavimus intercedere: panthera quidem major et toto corpore est et capite, atque multo ferocior; *Prosp. Alp. hist. Egypt. part. 1. p. 238.* Accepi a quodam oculato teste, in aula regis Galliarum, leopardus duorum generum ali; magnitudine tantum differentes, majores vituli corpulentia esse, humiliores, oblongiores; alteros minores ad canis molem accedere, et unum ex minoribus aliquando ad spectaculum regi exhibendum, a bestiario aut venatore, equo incidente a tergo super stragulo aut pulvino vehi, allegatum catena, et lepore objecto dimitti, quem ille saltibus aliquot bene magnis affectus jugulet; *Gesner, Hist. quad. p. 831.*—Emmanuel King of Portugal sent to Leo X. a panther trained to the chase; *Hist. des Conquêtes des Portugais par le P. Lafiteau, tom. 1. p. 525.* This panther was an ounce; for the author likewise says, that, in Persia, they use the ounce or panther for hunting antelopes; that these animals were brought from Arabia; and that they were so tame as to be carried on the crupper of a horse.

* Tigres ex Ethiopia in Ægyptum convectas vidimus, et si nullo

the chase, great attention is necessary in training him, and still greater caution is requisite in conducting and exercising him. He is led in a cart, shut up in a cage, the door of which is opened when game appears. He springs towards the animal, and generally, at three or four bounds, seizes and strangles it; but, if he misses his blow, he becomes furious, and sometimes attacks his master, who commonly prevents this hazard, by carrying along with him pieces of flesh, or live animals, as lambs or kids, one of which he throws to him to appease his rage.

The species of the ounce seems to be more numerous and more diffused than that of the pan-

M 3

ther.

nullo modo cicuratae hae mansuefiant, neque unquam ferinam naturam relinquunt; sunt leaenis quam similes et forma et colore albicante, rotundis maculis fulvescentibus variatae, sed leaenis longe majores sunt; *Prosp. Alp. Hist. Egypt. p. 237.*—When the hunter discovers the antelopes, he endeavours to show them to the leopard, which is chained upon a small cart. This cunning animal does not instantly run at them, as might be imagined, but winds about, creeping and concealing himself, in order to approach and surprise them; and, as he is capable of making five or six springs with incredible rapidity, when he has advanced near enough, he darts upon them, strangles them in an instant, and gluts himself with their blood, their heart, and their liver. But, if he misses his aim, which sometimes happens, he stands still, and never attempts to pursue them, which would be in vain; for they run much swifter and longer than he is able. His master then approaches him gently, flattering and amusing him with pieces of flesh, till he throws a cover over his eyes, puts on his chain, and conducts him back to the cart; *Voyage de Bernier, dans le Mogol. tom. 2. p. 243.* This description can only apply to the large panther; because no such precautions are necessary with the ounce.

ther. Ounces are very common in Barbary, Arabia, and all the southern parts of Asia, Egypt perhaps excepted *. They even extend as far as China, where they are called *hinen-pao* †.

§ The ounce is used for hunting in the warm climates of Asia; because dogs are very scarce in these countries ‡, having hardly any but what are transported thither, and even these lose, in a short time, their voice and their instinct. Besides, the panther, the ounce, and the leopard, have such an antipathy to dogs, that they attack them preferably to all other animals §. In Europe, our hunting dogs have no enemy but the wolf. But, in countries filled with tigers, lions, panthers, leopards, and ounces, which are all stronger and more cruel than the wolf, it is impossible to preserve dogs. The scent of the ounce is not near so fine as that of the dog. He neither follows animals by their foot, nor is he able to

* There are no lions, tigers, or leopards, in Egypt; *Descript. de l'Egypte, par Mascrier. tom. 2. p. 125.*

† *Hinen-pao* is a kind of leopard or panther found in the province of Pekin. He is not so ferocious as the tiger, and the Chinese are very fond of him; *Relation de la Chine, par Thevenot, p. 19.*

‡ As the Moors at Surat, and on the Malabar coasts, have no dogs to hunt the antelopes and fallow-deer, they endeavour to supply this defect, by taming and training leopards. These animals attack their prey with great address, and, after seizing it, they never quit, but remain firmly fixed upon it; *Voyage de Jean Ovington, tom. 1. p. 278.*

§ The leopards are mortal enemies to the dogs, and devour them as often as they meet with them; *Voyage de la Maire, p. 99.*

OUNCE, AND LEOPARD. 183

to overtake them in a continued chase. He hunts solely by the eye, and makes only a few springs at his prey. He is so nimble, that he easily clears a ditch or a wall of many feet. He often climbs trees to watch passing animals, and suddenly darts down upon them. This mode of seizing prey is common to the panther, the leopard, and the ounce.

The manners and dispositions of the leopard* are the same with those of the panther. But I learn

* The Guiney leopard is generally of the size and stature of a large bull-dog. He is very ferocious and incapable of being tamed. He attacks with fury every kind of animal, man not excepted. Neither the tigers nor lions of the Guiney coast do any injury to man, unless they are extremely pressed with hunger. The leopard partakes something of the lion and something of the large wild cat. His skin is all marked with round spots of different shades of blackness upon a grayish ground. His head is of a middle size, his mouth is large and well armed with teeth, of which the women of that country make necklaces. His tongue is equally rough as that of the lion. His eyes are fiery, and continually in motion. His aspect is cruel, and indicates a perpetual thirst for blood. His ears are round, short, and always erect. He has a thick short neck, strong thighs, large feet, five toes on the fore and four on the hind feet, both armed with strong sharp claws, which he shuts like the fingers of a hand, and never looses them from his prey till he has torn it in pieces, both with his claws and teeth. Though very rapacious and gluttonous, he is always meagre. The leopards multiply very fast; but the tiger, who is stronger and more alert, is their deadly foe, and destroys great numbers of them. The Negroes take the tiger, the leopard, and the lion, by means of deep pits covered with reeds and a little earth, upon which they place some dead animal as a bait. *Voyage de Desmarchais, tom. 1. p. 202.*—The tiger of Senegal is more furious than the lion. He is nearly

learn not that he has ever been tamed like the ounce, or that the Negroes of Senegal or Guiney, where he is very common, ever use him for hunting. He is generally larger than the ounce and smaller than the panther. His tail, though two or two and a half feet long, is shorter than that of the ounce.

The leopard of Senegal and Guiney, to which we have particularly applied the name of *leopard*, is probably the animal called *Engoi* * at Congo, and perhaps also the *Antamba* † of Madagascar. We mention these names, because it would increase our knowledge of animals, if we had lists of the names given them in the language of the countries they inhabit.

The species of the leopard appears to be subject to greater varieties than that of the panther or ounce. We have examined a greater number of leopards skins, which differed from each other, either

nearly about the length and height of a greyhound. He attacks, indiscriminately, man and all other animals. The Negroes kill him with their darts and arrows, in order to procure his skin. Though their bodies be pierced in many places, they defend themselves to the last drop of their blood, and often destroy some of the assailants; *Voyage de la Mairé*, p. 99.

* The tigers of Congo are called *Engoi*; *Drake's Voyages*, p. 105. *Recueil des voyages qui ont servi à l'établissement de la compagnie des Indes*, tom. 4. p. 326.

† The Madagascar antamba is an animal as large as a dog, with a round head, and, according to the relations of the Negroes, resembles the leopard. It devours both men and cattle, and is found only in the most desert parts of the island; *Voyage de Madagascar, par Flacourt*, tom. 1. p. 154.

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either in the shades of the ground-colour, or in those of the annular spots, some of which were more distinctly defined than others. But these rings are always smaller than those of the panther or ounce. In all leopards skins, the spots are nearly of the same size and figure; and their chief difference consists in the deepness or lightness of their colours. The ground-colour of the skin differs only by being of a more or less deep yellow. But, as all these skins are nearly of the same size, both in the body and tail, it is probable that they belong to the same species of animal.

The panther, the ounce, and the leopard, inhabit Africa, and the warmest climates of Asia only. They have never spread over the northern, or even the temperate regions. Aristotle mentions the panther as an African and Asiatic animal, and says expressly, that it existed not in Europe. Hence these animals, which seem to be confined to the Torrid Zone of the Old Continent, could never pass over to the New by the northern lands; and we shall find, by the descriptions we are to give of the American animals of this genus, that they are different species, and ought not to be confounded, as most of our nomenclators have done, with those of Asia or Africa.

These animals, in general, delight in the thickest forests, and often frequent the banks of rivers, and the environs of sequestered habitations, where they endeavour to surprise domestic animals,

mals, and the wild beasts which come to the rivers in quest of water. They seldom attack men, even when provoked. They climb trees with great ease, where they pursue cats, and other animals, which seldom escape them. Though they live solely on prey, and are commonly meagre, travellers pretend that their flesh is not bad. It is, indeed, eaten by the Indians and Negroes; but they prefer the flesh of the dog, which they consider as the most delicious food. With regard to their skins, they are all valuable, and make excellent furs. The most beautiful and dearest is that of the leopard, one of which, when the yellow is bright, and the spots very black and well defined, costs eight or ten louis-d'ors.

T H E

Plate CXIII



A. Bell sculp.

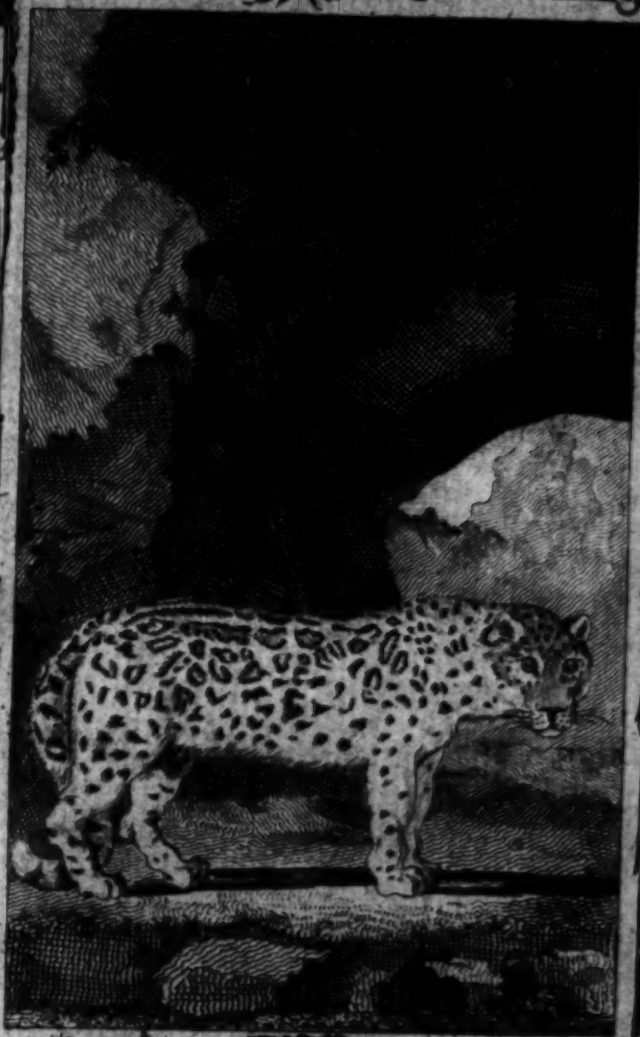
PANTHER.

Plate CXIV.



FEMALE PANTHER.

Plate CXV.



A. Bell sculp.

OUNCE.

Plate CXVI.



A. Bell sculpt

LEOPARD.

THE JAGUAR*.

THE jaguar resembles the ounce in size of body, in the figure of most of the spots, and even in dispositions. He is not so bold as the leopard or panther. Like the leopard, the ground-

* The hair of the jaguar, or Brazilian cat, is of a bright tawny colour. The top of the back is marked with long stripes of black, and the sides with irregular oblong spots, open in the middle, which is the ground-colour of the hair. The thighs and legs are marked with full black spots. The breast and belly are whitish, and the tail not so long as the body: The upper part is a deep tawny, marked irregularly with large black spots, the lower part with smaller spots. It grows to the size of a wolf, and even larger; *Pennant's Synops. of quad. p. 176.*

The *jaguar* or *jaguara* is the Brazilian name of this animal, which we have adopted to distinguish it from the tiger, the panther, the ounce, and the leopard, with which it has often been confounded. It was called *janou-are*, or *janouar*, by the first historians of the New World. Piso and Marcgrave first wrote *jaguara*, instead of *janouara*. The Mexicans called it *Tlatlahqui occlotl*, according to Hernandez, p. 498. The Portuguese called it *onça*, because it had some resemblance to that animal.

Jaguara; *Pison. Hist. Nat. p. 103.*

Jaguara Brasiliensis; *Marcgrav. Hist. Brasil. p. 235.*

Pardus an Lynx Brasiliensis, jaguara dicta Marcgravii; *Raii Synops. quad. p. 168.*

Tigris Americana jaguara Brasiliensis; *Klein. quad. p. 168.*

Tigre de la Guiane: *Voyage de Desmarchais, tom. 3 p. 299.*

Tigris Americana, Felis flavescens, maculis nigris orbiculatis, quibusdam rosam referentibus, viriegata; *Briffon. quad. p. 169.*

Felis

ground-colour of his hair is a beautiful yellow, and not gray like the ounce. His tail is shorter than that of either of these animals: His hair is longer than that of the panther, and shorter than that of the ounce: It is crisped when young, and smooth when he arrives at full growth. We have never seen this animal alive; but had one sent us well preserved in spirits; and it is from this subject that our figure and description have been taken. It had been taken young, and brought up in the house till it was two years old, when it was killed, in order to be transmitted to us*. It had not, therefore, acquired its natural dimensions. But, it is evident, from the bare inspection of this animal, that, when full grown, he could not exceed the size of an ordinary dog. This animal, however, is the most formidable, the most cruel, in a word, he is the tiger of the
New

Felis onca, cauda mediocri, corpore flavescente, ocellis nigris rotundato-angulatus, medio flavis; Linn. Syst. p. 62.

* This animal was sent to us by M. Pagés, King's physician at St Domingo, under the name of *Chat-tigre*. M. Pagés remarks in his letter, that this animal was brought from the Continent, where it is very common, to St Domingo, in a Spanish vessel. He adds, that it was two years of age when he ordered it to be killed; that it had swelled in the spirits; that it eat, drank, and uttered the same cry as the wild cat, and that it mewed, and preferred fish to flesh: Piso and Marcgrave likewise tell us, that the jaguars of Brazil are very fond of fish. The chat-tigre, says Dampier, *tom.* 3. *p.* 306. which is very common in the Bay of Campeachy, has short legs, and a contracted body, like that of the mastiff; but, in the form of his head, the colour of his hair, and the manner of watching his prey, he resembles the tiger.

New World, where Nature seems to have contracted every kind of quadruped. Like the tiger, the jaguar lives on prey. But a light is sufficient to make him fly; and, when his stomach is full, he so entirely loses all courage and vivacity, that he runs before a single dog. He is neither nimble nor active, but when pressed with hunger*. The savages, who are naturally poltroons, are afraid to encounter him. They alledge, that he prefers them to the Europeans, whom he never attacks†. The leopard is likewise said to prefer the Blacks to the Whites‡, whom he is supposed to distinguish by the

* There are tigers in Brasil which, when agitated by famine, are very bold; but, after a full meal, they become so cowardly, that they instantly fly from the dogs; *Descript. des Indes Orientales, par Herrera, p. 252.* The same remark is to be found in *l'Hist. des Indes par Maffée, p. 69.* There are tigers about Porto-bello, the environs of which are very woody and desert. These tigers appear to be of a small species; for a single man, when the animal is about to attack him, often cuts off its paws one after another; *Voyage de Dom Juan et Dom Antoine de Ulloa; Extrait de la Bibliothèque raisonnée, tom. 44. p. 413.*

† I have heard that these tigers had an antipathy against the Indians; that they seldom or never attack the Spaniards; and that they sometimes pick out and carry off an Indian when sleeping in the midst of Spaniards; *Hist. Nat. des Indes, par Joseph Acosta, p. 190.*

‡ In the province of Bamba, in the kingdom of Congo, there are tigers which never attack white men, but often rush upon the Negroes: When a Negroe and a white man are sleeping near each other, these animals run with fury upon the Negro, without injuring the White; *Drake's Voyage round the world, p. 105.*

the smell, and attacks them during the night as well as the day.

Almost all the authors who have written the history of the New World mention this animal; some under the name of the *tiger* or *leopard*, others under the names given them in Brasil, Mexico, &c. Piso and Marcgrave, who first described him fully, called him *jaguara*, instead or *janouara*, his Brazilian name*. They have also mentioned another animal of the same genus, and perhaps of the same species, under the name of *jaguarette*. Like these two authors, we have distinguished the jaguar from the jaguarette; because they appear to be animals of a different species. However, as we have seen one of these animals only, we cannot determine whether they are two distinct, or a variety of the same species. Piso and Marcgrave remark, that the jaguarette is distinguished from the jaguar by having shorter, more bright, and differently coloured hair, which is black, variegated with spots of a still deeper black. But, in every other particular, he resembles the jaguar

* In Brasil there is a rapacious animal which the savages call *janou-ara*, and has limbs nearly as high as those of the greyhound; but he has great whiskers and a beautiful skin, variegated like that of the ounce, whom he very much resembles in every other respect; *Voyage de Jean de Lery*, p. 162.—The janouar is a kind of ounce, as large as an English bull-dog, with a fine spotted skin; *Mission des Capucins, par le Père d'Abbeville*, p. 251.—The janouara of Brasil lives on prey only. He is of the stature of a greyhound, and his skin is spotted; *Voyage de Cereal*, tom. 1. p. 173.

so strongly in the figure of his body, manners, and temper, that he may still be only a variety of the same species; especially as Piso informs us, that, in the jaguar, the ground colour of the hair, and that of the spots, vary in different individuals of this species. He says, that some are marked with black, and others with red or yellow spots: And, with regard to the difference of gray, yellow, or black colours, the same thing takes place in other species of animals. There are black wolves, black foxes, black squirrels, &c. If such variations are rarer among wild than domestic animals, the phaenomenon must be ascribed to the former being liable to fewer accidents which can produce such changes. As the life of the former is more uniform, their food less various, and their liberty greater than those of the latter, their nature must likewise be more constant, or less subject to accidental alterations in colour.

The jaguar is found in Brasil, in Paraguay *, Tucuman †, Guiana ‡, in the country of the Amazons §, in Mexico ||, and in all the regions of South America. It is, however, more rare in Cayenne

* Hist. de Parag. par Charlevoix, tom. 1. p. 31. 171. tom. 4. p. 95. † Id. ibid. ‡ Voyage de la France equinoxiale, par Binet, p. 343. et Desmarchais, tom. 3. p. 299.

§ We find the janouar in Maragnon; *Hist. de la Mission des Capucins dans l'Isle du Maragnon, par le P. d'Abbeville, p. 251.*

|| In the Mexican mountains, there is an animal called ounce, of the size and figure of the lynx, but whose claws and head have a greater resemblance to those of the tiger; *Roger's voyage, tom. 2. p. 42.*

Cayenne than the cougar, which has been called the *red tiger*; and the jaguar is not now so common in Brasil, which is its native country, as formerly. A price has been set on his head; numbers of this species have accordingly been destroyed; and the rest have retired from the coasts into the most desert parts of the country*. The jaguarette has always been less common, or, at least, has kept at a greater distance from the habitations of men†; and the few travellers who mention this animal seem only to copy Marcgrave and Piso.

S U P P L E M E N T.

We here give a figure of an animal, which belongs to the species of the leopard, or jaguar. The drawing was sent to us by the deceased Mr Colinson, without either name or history. As we are ignorant whether it is a native of the Old or New Continent, and as it differs from the ounce and leopard by the form of its spots, and still more from the jaguar and ocelot, we could not determine to which of these animals it may be referred. It appears, however, to have a greater relation to the jaguar than to the leopard.

The

* Dampier, tom. 4. p. 69.
marchais, tom. 3. p. 300.

† Voyage de Des-

The JAGUAR of NEW SPAIN.

In the month of June 1775, a female jaguar was sent to M. Le Brun from New Spain. It was very young; for all its teeth had not yet appeared, and it has since grown larger at Chailot, where M. de Seve made a drawing of it in the beginning of October. We suppose it to be about nine or ten months old. His length, from the muzzle to the anus, was one foot eleven inches, and the height of his hind train from thirteen to fourteen inches. The jaguar described in the original work, was two feet five inches four lines long, and the height of the hind train one foot four inches nine lines: But it was two years of age. Though belonging to different countries, there is a great similarity between these two animals. The differences in the form of the spots seem to be individual varieties only. The iris is of a brown colour inclining to green; the edges of the eyes are black, with a white band both above and below. The colour of the head is yellow blended with gray, which is also the ground-colour of the spots; and the latter are bordered with black bands. These spots and bands are grounded on a dirty reddish white colour, inclining more or less to gray. The ears are black, with a very large white spot on their external part. The tail is long, and well covered with hair.

The JAGUAR of GUIANA.

M. Sonini de Manoncour has made some excellent remarks on the jaguars of Guiana, which I shall here transcribe.

‘The hair of the young jaguar,’ says he, ‘is not crisped, as M. de Buffon alledges. I have seen young jaguars with hair as smooth as that of adults. This observation has been confirmed by the most experienced hunters. With regard to their size, instead of equalling only, as M. de Buffon remarks, that of an ordinary dog, I have had two skins, which I was assured belonged to subjects of two or three years old; and one of them measured near five feet from the muzzle to the tail, which was two feet long. I have myself seen, in the forests of Guiana, tracks of these animals, which induced me, as well as M. de la Condamine, to think, that the American animals called tigers were as large as those of Africa. I even think, that, except the true, or royal tiger, the American tiger is the largest animal to which this appellation is given; since, according to M. de Buffon, the panther, which is the largest of these animals, exceeds not, when full grown, five or six feet in length; and it is certain that there are quadrupeds of this kind which greatly surpass these dimensions. The colour of the jaguar varies with age. When young, he

‘ he is of a very deep yellow, approaching to red,
 ‘ or even brown. This colour brightens in pro-
 ‘ portion as the animal increases in years.

‘ The jaguar is not that indolent animal he
 ‘ has been represented by some travellers, whom
 ‘ M. de Buffon has copied. Instead of being
 ‘ afraid of dogs, he springs upon them wherever
 ‘ he meets them. He makes great haycock a-
 ‘ mong the flocks. Those which inhabit the de-
 ‘ serts of Guiana are even formidable to men.
 ‘ In a journey I made through these great forests,
 ‘ we were tormented two nights successively by
 ‘ a jaguar, notwithstanding a large fire, which
 ‘ was kept perpetually blazing. He roamed
 ‘ continually round us; and we found it impos-
 ‘ sible to shoot him; for we no sooner aimed at
 ‘ him than he disappeared in a moment, then re-
 ‘ turned on the other side, and in this manner
 ‘ kept us in perpetual alarm. Notwithstanding
 ‘ all our vigilance, we could never shoot him.
 ‘ He continued these manoeuvres during two
 ‘ complete nights. He returned on the third:
 ‘ But, seemingly disgusted by not obtaining his
 ‘ end, and perceiving that we had augmented
 ‘ our fire, which he was afraid to approach too
 ‘ near, he left us with dreadful howlings. His
 ‘ cry, *hou, hou*, is somewhat plaintive, grave,
 ‘ and strong, like that of the ox.

‘ With regard to the supposed predilection of
 ‘ the jaguar to the natives of the country, rather
 ‘ than to the Negroes or Whites, I suspect
 N 2 ‘ strongly

‘strongly that it is fabulous. I found this notion established at Cayenne: But I travelled along with savages through places where the largest tigers are common, and never discovered that they entertained any remarkable degree of terror at these animals. Like us, they suspended their hammocks on trees, removed to a certain distance from us, and contented themselves with kindling a small fire, which frequently went out in the course of the night. These savages, however, were inhabitants of the interior parts of the country, and, consequently, knew the danger they had to apprehend. I can assure you, that they took no precautions and appeared to be very little affected, though surrounded with these animals.’

Here I cannot help remarking, that this last fact proves that these animals are not very dangerous, at least to men.

‘The flesh of the jaguar is not good to eat. He combats, with advantage, all the quadrupeds of the New Continent, who fly from him with terror. The ant-eater, though he has no teeth to defend himself, is the most cruel enemy the jaguars have to encounter. As soon as the jaguar attacks the ant-eater, it lies down on its back, and seizes and suffocates him with its long claws.’

Plate CXVII.



A. Bell Sculp.

JAGUAR.

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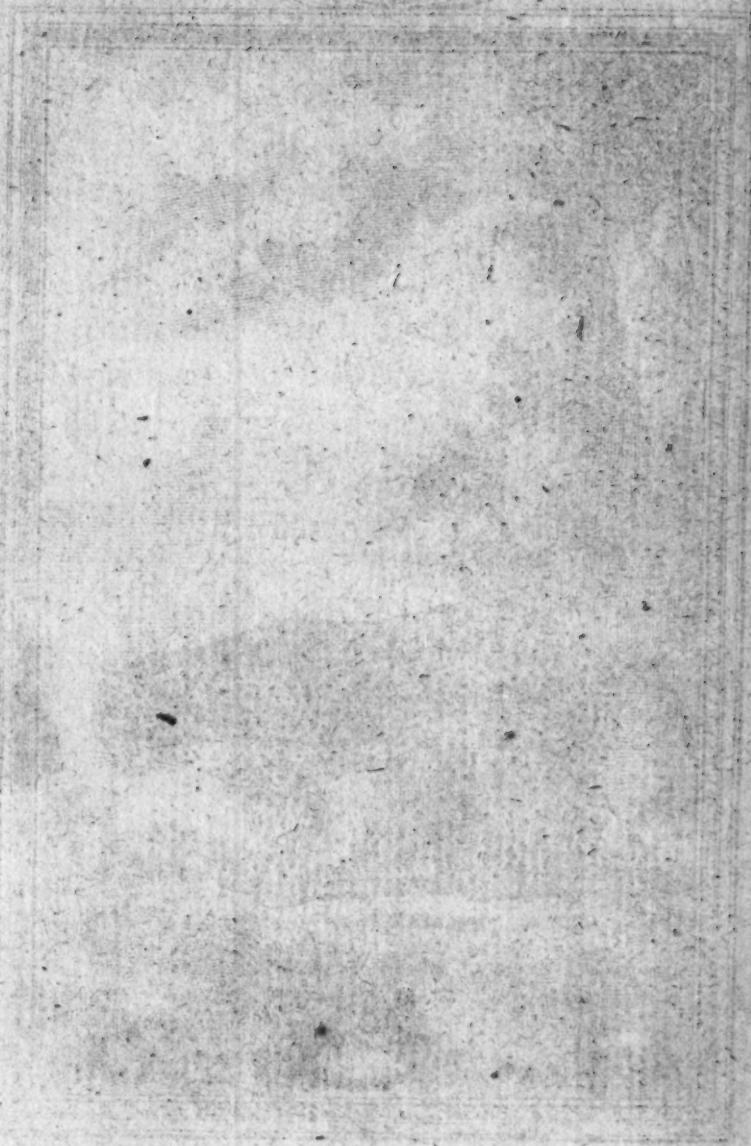


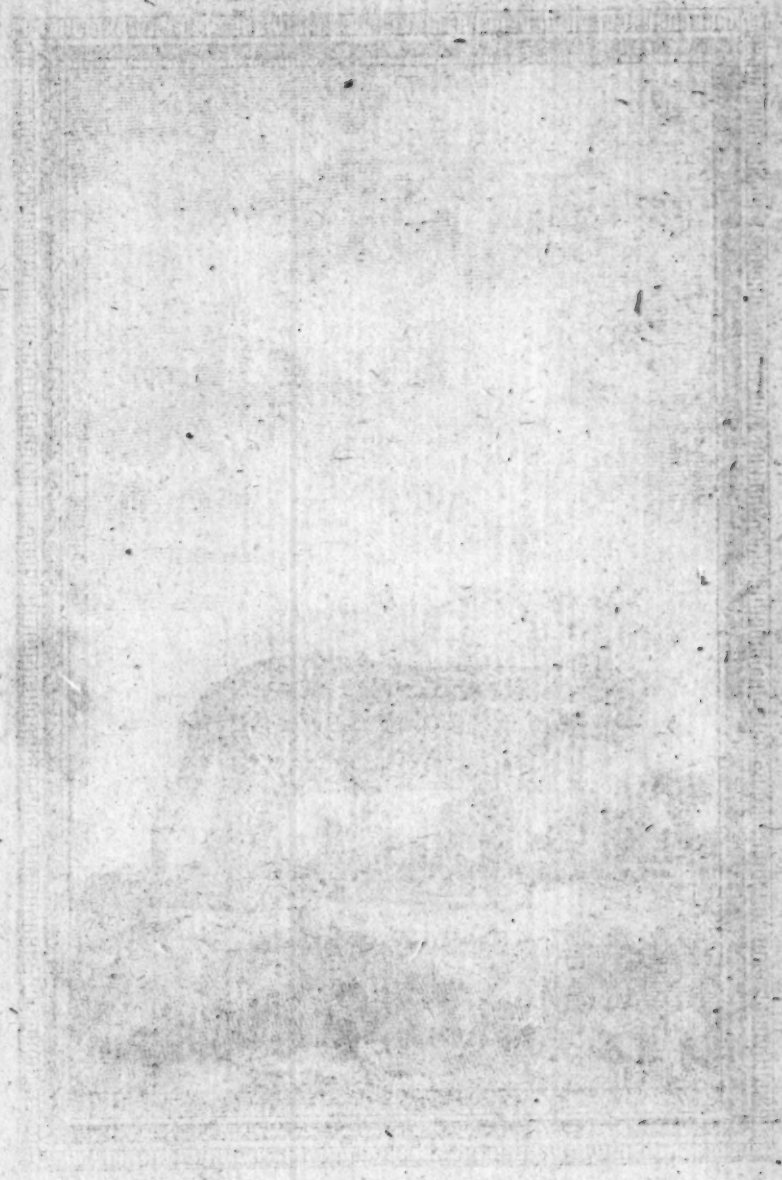
Plate CXVIII



A. Bell Sculpt.

JAGUAR or LEOPARD.

1873



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Plate CXIX.



A. Bellinckx f.

JAGUAR of NEW SPAIN.

THE COUGUAR*.

THE couguar is as long, but not so thick as the jaguar; his legs are also longer, and he has more the shape of a greyhound. His head is small, his tail long, and his hair of nearly a uniform colour, being of a lively red, mixed with a little tincture of black, especially on the back. He has no spots like those of the tiger, the leopard, the ounce, and the panther. His chin, throat, and all the inferior parts of his body,

N 3

dy,

* The couguar or brown cat, has a very little head, small pointed ears, large eyes, a white chin, and the back, neck, rump, and sides, of a pale brownish red colour, mixed with dusky hairs. The breast, belly, and inside of the legs, are cinereous. The hair on the belly is long; the tail is dusky and ferruginous, but black at the tip. The teeth are of a vast size, and the claws are white, the outmost one of the fore-feet being much longer than the others. It is long bodied, and high on its legs. The length from nose to tail, is five feet three inches, and that of the tail two feet eight; *Pennant's Synops. of quad. p. 179.*

The couguar, which we have contracted from the Brazilian name *caguacu ara*, pronounced *cougouacouare*, is called the red tiger in Guiana.

Cuguacu ara; *Pison, Hist. Nat. p. 105.*

Cuguacu arana; *Marcgravii Hist. Brasil. p. 245.*

Cuguacu arana Brasiliensibus; *Raii Synops. quad. p. 169.*

Tigris fulvus; *Barrère, Hist. Franc. equinox. p. 166.*

Felis ex flavo rufescens, mente et infimo ventre albicantibus *Tigris fulva. Le tigre rouge*; *Briffon, Regn. anim. p. 272.*

The American tiger, whose skin is brown, and without spots. *Voyage de la Condamine sur la riviere des Amazones, p. 162.*

dy, are whitish. Though weaker, he is equally ferocious, and, perhaps, more cruel than the jaguar. He appears to be still more rapacious*; for he devours his prey without tearing it in pieces. As soon as he seizes an animal, he kills, sucks, and eats it successively, and never quits it till he is fully gorged.

These animals are very common in Guiana. Great numbers of them were formerly seen swimming from the continent to the island of Cayenne †, in order to devour the flocks. They were, at first, a great scourge to the colony; but, by hunting and destroying them, they have gradually retired to a distance from the more cultivated parts of the country. They are found in Brasil, Paraguay, and the Amazon country; and it is probable, that the animal mentioned by some travellers, under the name of *ocorome* ‡, is the same with the couguar, as well as the Iroquois animal ||, which has been regarded as a tiger,

* Cuguacu-arana, the red, or rather bay tiger, is the most insatiable and rapacious of all American animals; *Barrère, Hist. de la France équinox. p. 166.*

† Voyage de Desmarchais, p. 300—The colony of Cayenne has not a greater scourge than that of the tigers; *Roger's voyage, tom. 3. p. 28.*

‡ The *ocorome* of Peru is of the size of a large dog. His hair is red, his muzzle pointed, and his teeth very sharp; *Lettres édifiantes, recueil 10. Voyages de Coreal, tom. 2. p. 352.*

|| We find in the Iroquois country, tigers of a grayish colour, but not spotted. They have a long tail, and hunt the porcupine. The Iroquois kill them more frequently on trees than on the ground . . . Some of them have reddish hair, and,

ger, though he is neither spotted like the panther, nor marked with long bands like the tiger.

The couguars, by the lightness of their body, and the length of their limbs, should be more swift, and climb trees with greater facility, than the jaguar. When gorged with prey, they are both equally indolent and cowardly. They seldom attack men, unless they find them sleeping. When men pass the night in the woods, the kindling a fire is sufficient to prevent the approach of these animals *. They delight in the shades of large forests. They conceal themselves in the thickets, or even in a bushy tree, from which they dart upon animals as they pass. Though they live on prey only, and drink blood oftener than water, their flesh is said to be very good. Piso says, that it is as good as veal †, and others compare it to mutton ‡. I can hardly believe that the flesh of this animal is good, especially as Desmarchais affirms ||, that the

and, in all of them, it is very fine, and their skins make excellent furs; *Charlevoix, tom. 1. p. 272.*

* The Indians on the banks of the Oroonoko in Guiana, kindle fires during the night to intimidate the tigers, who never approach as long as the fire burns; *Hist. Nat. de l'Orenoque par le Pere Joseph Jumilla, tom. 2. p. 3.*

† Nec est, quod aliquis putet à Barbaris tantum expetere carnem horum rapacium animalium: Illae enim quae rufescentibus et flavescentibus maculis sunt, ab omnibus passim Europeis incolis, instar vitulinae, aestimatur; *Pison. Hist. Nat. p. 103.*

‡ The flesh of the Iroquois tigers, even in the estimation of the French, is as good as mutton; *Charlevoix, tom. 1. p. 272.*

|| Voyage de Desmarchais, tom. 3. p. 299.

the skin is the only part of him which is valuable, and that his flesh is generally lean, and of a disagreeable flavour.

S U P P L E M E N T.

In the original work, we gave the figure of a male couguar, and we now add that of the female, which we had an opportunity of drawing a few years ago.

The COUGUAR of PENNSYLVANIA.

THE Jaguar, as well as the Couguar, inhabits the warmest regions of South America. But there is another species of couguar (of which we have given a figure) found in the temperate climates of North America, as on the mountains of Carolina, Georgia, Pensylvania, and the adjacent provinces. The drawing of this couguar was sent me from England by the late Mr Colinson, with the following description: If it is exact, this couguar must differ greatly from the common kind.

‘The couguar of Pensylvania,’ says Mr Colinson, ‘differs much from the couguar of Cayenne (above described). His limbs are shorter, his

' his body much longer, and his tail is also three
 ' or four inches longer. But, in the colour of
 ' the hair, and the form of the head and ears,
 ' they have a perfect resemblance to each other.
 ' The couguar of Pensylvania,' adds Mr Colinson,
 ' is an animal remarkable for thinness and length
 ' of body, shortness of legs, and length of tail.
 ' The length of the body, from the muzzle to the
 ' anus, is five feet four inches; and that of the
 ' tail is two feet six inches. The fore-legs are
 ' one foot long, and the hind legs one foot three
 ' inches. The height of the body before is one
 ' foot nine inches, and one foot ten inches behind.
 ' The circumference of the thickest part of the
 ' body is two feet three inches*.'

Mr Edwards, who, for skill in the art of drawing, and knowledge of natural history, merits the applauses of all lovers of science, sent me some engravings, which corresponded with the drawing communicated by Mr Colinson.

THE BLACK COUGUAR.

M. de la BORDE, King's physician at Cayenne, informs me, that in the Continent there are three species of rapacious animals; that the first is the jaguar, which is called the *tiger*; that the

* Mr Colinson's letter to M. de Buffon, April 30. 1763.

the second is the couguar, called the *red tiger*, on account of the uniform redness of his hair; that the jaguar is of the size of a large bull-dog, and weighs about 200 pounds; that the couguar is smaller, less dangerous, and not so frequent in the neighbourhood of Cayenne as the jaguar; and that both these animals take six years in acquiring their full growth. He adds, that there is a third species in these countries, called the *black tiger*, of which we have given a figure under the appellation of the *black couguar*.

'The head,' says M. de la Borde, 'is pretty similar to that of the common couguar; but the animal has long black hair, and likewise a long tail, and strong whiskers. He weighs not above forty pounds. The female brings forth her young in the hollows of old trees *.'

This

* To this description we shall add that given by Mr Pennant, which is more accurate, though somewhat different from that communicated by M. de la Borde to M. de Buffon.

'*Black tiger*, or *cat*, with the head black, sides, fore part of the legs, and the tail, covered with short and very glossy hairs, of a dusky colour, sometimes spotted with black, but generally plain: Upper lips white: At the corner of the mouth a black spot: Long hairs above each eye, and long whiskers on the upper lip: Lower lip, throat, belly, and the inside of the legs, whitish, or very pale ash-colour: Paws white: Ears pointed: Grows to the size of a heifer of a year old: Has vast strength in its limbs.—Inhabits Brazil and Guiana: Is a cruel and fierce beast; much dreaded by the Indians; but happily is a scarce species;’ *Pennant’s Synopsis of quad.* p. 180.

This description was taken from two black couguars which were shown in London some years ago.

This black couguar may be the same animal which Piso and Marcgrave call the *jaguarrette*, or *jaguar with black hair*, and which no other traveller has mentioned under the name of *jaguarrette*. I only find, in a note of M. Sonini de Manoncour, that the jaguarrette is called the *black tiger* at Cayenne, and that he is of a different species from the jaguar, being smaller, and thinner in the body. This animal is fierce and rapacious; but he is very rare in the neighbourhood of Cayenne.

‘The jaguars and couguars,’ continues M. de la Bordé, ‘are very common in all the lands which border on the river of the Amazons, as far as Saint Martha. Their skin is so tender as to be easily pierced by the simple arrows of the Indians. Besides, all these animals are not absolutely fond of carnage; for a single prey always satisfies them. They go generally alone; but, when the females are in season, sometimes two or three of them are seen together.’

‘When pressed with hunger, they attack cows and oxen. They spring upon the back of an ox, fix the claws of their left foot upon his neck, and, when he falls down, they tear him in pieces; and, after opening his breast and belly to glut themselves with blood, they trail portions of his flesh into the wood. They then cover the remainder of the carcase with branches of trees, and remove not to any great distance.’

stance. But, whenever the flesh begins to corrupt, they eat no more of it. Sometimes they conceal themselves in trees, and dart down upon passing animals. They likewise follow the flocks of wild hogs, and seize the stragglers. But, if ever they allow themselves to be surrounded by these animals, they have no safety except in a precipitate retreat.

But, neither the jaguars nor couguars are absolutely ferocious: They never attack men, unless when they feel themselves wounded. But they despise the assaults of dogs, which they often seize in the neighbourhood of houses. When pursued by such a number of dogs as obliges them to fly, they take refuge in the trees. These animals often roam about the margins of the sea, and eat the eggs deposited there by the turtles. They likewise eat *caïmans*, or alligators, lizards, fishes, and sometimes the buds and tender leaves of the Indian fig. They are excellent swimmers, and traverse the largest rivers. In taking the *caïman*, they lie down on their belly at the edge of the river, strike the water to make a noise, and attract the attention of the *caïman*, who soon approaches, and raises his head above the water, upon which the jaguar instantly makes his deadly spring, and, after killing the animal, drags him off to a distance, in order to devour him at leisure.

The Indians say, that the jaguars decoy the agouti by counterfeiting his cry. It is likewise said,

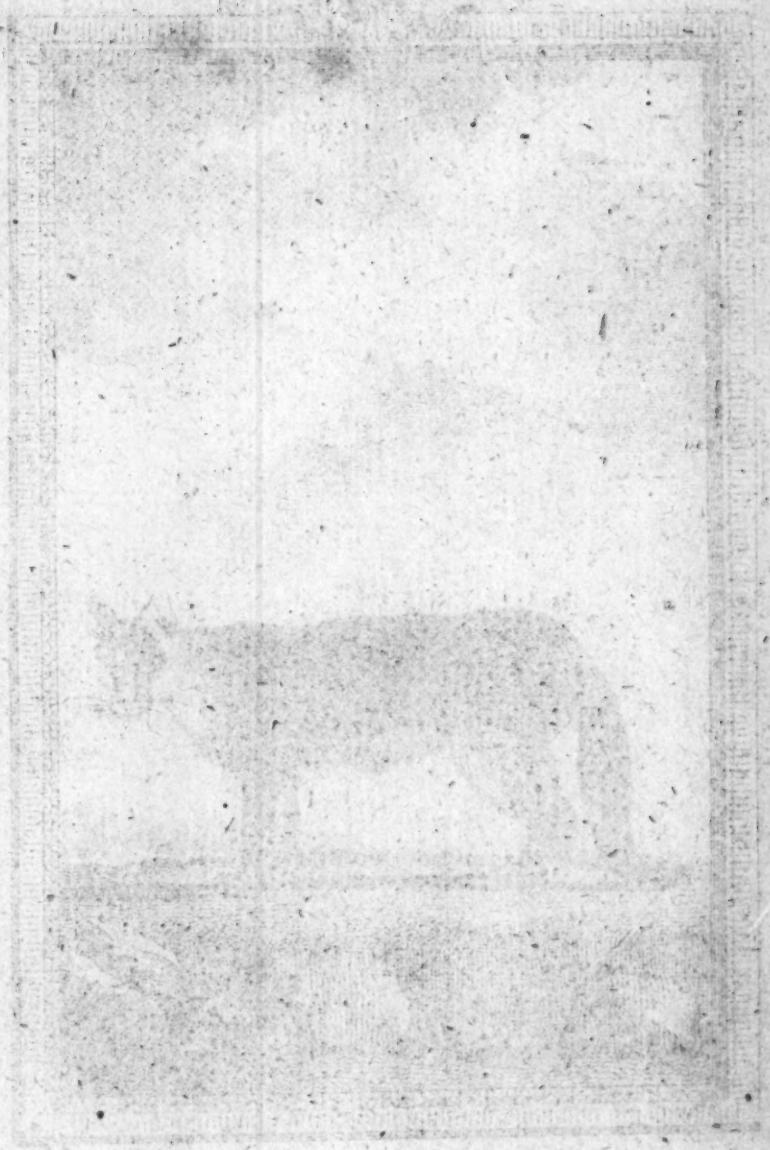
Plate CXX



A. Bell & Co. sculp.

COUGUAR.

THE END



THE END

Plate CXXI.



A. Bellenger sculp.

FEMALE COUGAR.

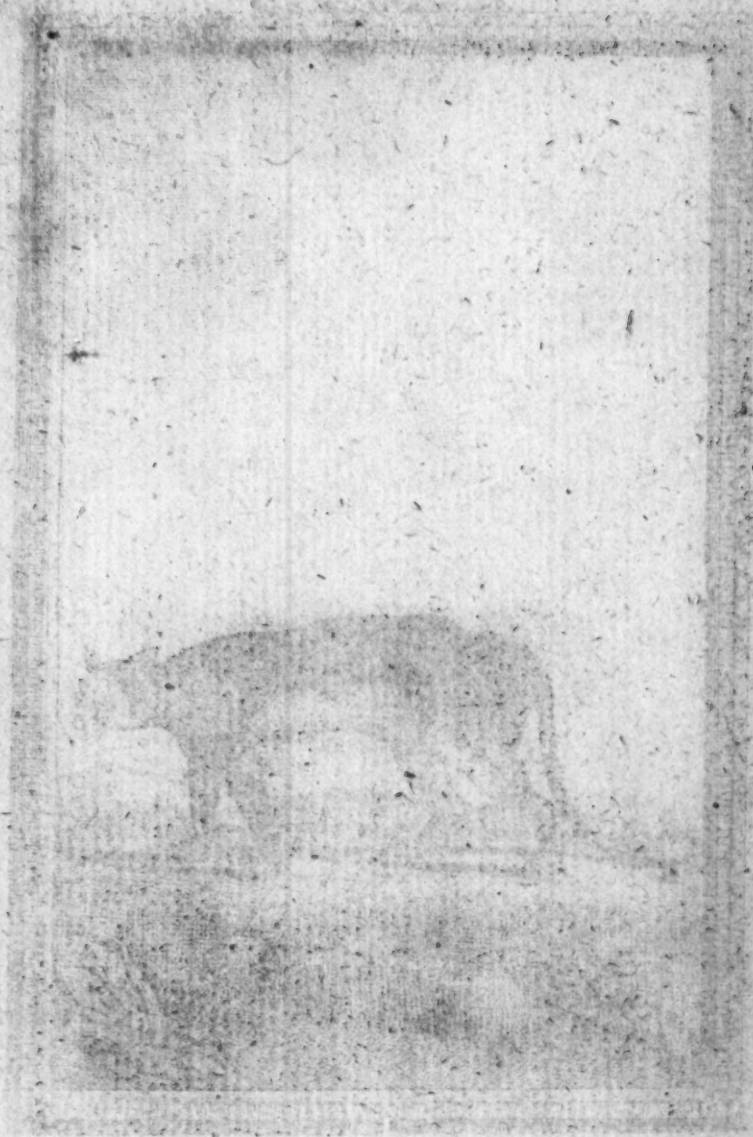
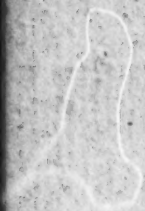


Plate CXXII.



COUGUAR of PENNSYLVANIA.

Plate CXXIII.



A. Bell sculpt.

BLACK COUGUAR.

' said, that they attract the caïman by a cry similar to that of a young dog, or like that of a man who coughs, which is still more difficult to believe.

' When these animals are in season, they set up dreadful roarings, which are heard at great distances. They commonly bring forth but one at a time, which they deposit in the large trunks of corrupted trees. At Cayenne, they eat the flesh of these animals, which, when young, is as white as that of a rabbit *.'

The cougar, when brought into captivity, is almost equally gentle as the other domestic animals.

' I have seen,' says the author of *Les Recherches sur les Americains*, ' a living cougar at the house of Ducos, a keeper of wild beasts; he was as peaceable as a dog, and of greater size than the largest kind of dogs. He stands high on his legs, which renders him nimble and alert. His canine teeth are very large, and conical. He was neither disarmed nor muzzled; and he was conducted by a leash.—He allowed himself to be caressed with the hand. I have seen boys mount him, and ride astraddle on his back. The name of the *paltroon tiger* has been given to him with propriety †.'

THE

* Extract from observations sent from M. de la Borde to M. de Buffon in the year 1774.

† *Defence des Recherches sur les Americains*, p. 86.

T H E L Y N X *.

THE gentlemen of the Academy of Sciences have given a very good description of the lynx, and have discussed, with much critical acuteness,

* The lynx has a short tail, black at the end, pale yellow eyes, and long full hair under the chin. The hair on the body is long and soft, of a cinereous colour, tinged with red, and marked with dusky spots, more or less distinct in different subjects; in some they are hardly visible. The belly is whitish. The ears are erect, and tufted with long black hairs, which is the character of the different kinds of *lynxes*. The legs and feet are very thick and strong. The length of the skin of a Russian lynx, from nose to tail, was four feet six inches, and that of the tail only six inches. They sometimes vary in their colour. The *Irbys* from Lake Balckath, or the *Kattle* of the Swedes, is whitish, spotted with black, and larger than the common kind. This variety is called by the Germans *Wolf-lucks*, and *Kalb-lucks*, on account of its size; *Pennant's Synops. of quad.* p. 186.

Αντζ; *Æliani. lib. 14. c. 6.* *Oppian. Cyneget. iii. 84.* *Chaus, lupus cervarius*, Plinii; *Raphius vel rufus*, apud Gallos, Plinio teste. In Italian, *Lupo cervero*, *Lupo gatto*; in Spanish, *Lynce*; in German, *Luchs*; in Polish, *Rys*, *Ostrowidz*; in Swedish, *Warglo*.

Lupus cervarius, lynx, chaus, raphius; *Gesner. hist. quad.* p. 678.

Lynx; *Aldrov. quad. dig. vivip. p. 90. 92.* *Ray, Synops. quad.* p. 166. *Johnston, de quad. p. 83.* *Klein. quad. p. 77.*

Lynx felis, cauda abbreviata, apice atra; auriculis apice barbatis; *Lynn. Syst. nat. p. 62.*

Loup-cervier; *Mem. pour servir a l'hist. des animaux, part. 1.* p. 127.

Felis auricularum apicibus pilis longissimis praeditis, cauda brevi. *Lynx*, le *Loup-cervier*; *Briffon. Regn. anim. p. 275.*

cuteness, the facts and appellations relating to this animal, which occur in the writings of the ancients *. They have shown, that the lynx of *Ælian* is the same animal which they have described and dissected, and they censure, with propriety, those who have mistaken it for the *thos* of Aristotle. This discussion is intermixed with remarks and reflections which are pertinent and interesting. After clearing their ground with so much address, we wish they had retained the true name *lynx*, instead of substituting that of *lupus cervarius*. They appear likewise, after making a proper distinction, with Oppian, of two different species or races of the lynx, the one large, which hunts and attacks the fallow deer and the stag, and the other smaller, which hunts the hare only, to have blended the two together, namely, the spotted lynx, which is commonly found in the northern countries, and the Levant or Barbary lynx, whose hair is of a uniform colour. We have seen both these animals alive. They resemble each other in many respects. They have both two long black pencils of hair on the tips of their ears. This character, under which *Ælian* first pointed out the lynx, is peculiar to these two animals, and probably led the gentlemen of the Academy to regard them as constituting but one species. But, independent of the difference of colour and spots
of

* Mem. pour servir à l'histoire des animaux, part. 1. p. 127.

of the hair, the following history and description will render it extremely probable that they are distinct species.

M. Klein says*, that the most beautiful lynx is a native of Africa and Asia, and particularly of Persia; that he saw one at Dresden that had been brought from Africa, which was finely spotted, and stood high on its limbs; that those of Europe, especially of Prussia and the northern regions, are less handsome; that they have little or no white, but are rather red, with blotched and ill-defined spots, &c. I choose not to deny absolutely what M. Klein has here advanced. I have never seen it mentioned, however, by any other author, that the lynx is a native of the warm countries of Asia and Africa. Kolbe† is the only writer who affirms, that the lynx is common at the Cape of Good Hope, and perfectly resembles that of Brandenburg, and the north of Europe. But I have discovered so many errors in the works of this author, that I give no credit to his testimony; unless when it coincides with that of others. Now, all travellers agree in having seen the spotted lynx in the north of Germany, in Lithuania, Muscovy, Siberia, Canada, and other northern regions of both Continents. But no author, whose writings I have perused, asserts that the lynx is to be met with in the warm regions of Africa or Asia. The lynx

* Klein de quad. p. 77.

† Mem. de Kolbe, tom. 3. p. 63.

lynx of the Levant, of Barbary, of Arabia, and other hot climates, is, as formerly remarked, of one uniform colour, without any spots: He is not, therefore, the lynx of M. Klein, which was finely spotted; nor that of Kolbe, which perfectly resembled that of Brandenburg. It would be a difficult task to reconcile the evidence of these authors with what we learn from other sources. The lynx is unquestionably more common in cold than in temperate climates, and he is, at least, very rare in warm countries. He was, indeed, known to the Greeks* and Romans. But, from this circumstance, it is not to be inferred, that he was brought from Africa, or the southern provinces of Asia. Pliny, on the contrary, says, that the first of these animals which appeared in Rome, were sent from Gaul in the days of Pompey. At present there are none in France, unless perhaps in the Alps or Pyrenees. Under the name of *Gaul*, however, the Romans comprehended a great part of the North; and, besides, France is now much warmer than it was in the time of the Romans. The finest skins of the lynx come from Siberia†, under the name of *Loup-cervier*, and from Canada,

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nada,

* The Greeks, who, in their fictions, always preserved some appearance of truth, especially with regard to times and places, say, that it was a King of *Scythia* who was changed into the lynx; which seems to indicate that the lynx was a Scythian animal.

† In Russia, the lynxes are very common; their skins are beautiful, but not so valuable as those of Siberia; *Nouv. Mem. sur la Grande Russie*, tom. 2. p. 73.

nada*, under that of *chat-cervier*, because these animals, like all others, are smaller in the New than in the Old Continent; in the former, they are compared to the wolf, in the latter to the cat †.

The following circumstances might deceive M. Klein, and even men of greater ability: 1. The ancients say, that India furnished lynxes to the God Bacchus ‡; 2. Pliny has placed the lynx in Æthiopia, and says §, that the hide and claws were prepared at *Carpathos*, now *Scarpanto*, or *Zerpanto*, an island in the Mediterranean between Rhodes and Candia; 3. Gesner has made a particular article of the Asiatic or African lynx, which contains the following extract of a letter from

* The lynx of North America is a kind of cat, but much larger. He climbs trees, and lives on the animals which he seizes. His hair is long, of a grayish white colour, and makes an excellent fur. His flesh is white, and makes good eating; *Descript. des côtes de l'Amerique Septent. tom. 2. p. 441.*

† In the woods of Canada, there are a great many wolves, or rather *chat-cerviers*; for they have nothing in common with the wolf, but a kind of howling; in every other respect, says M. Sarrasin, they are *ex genere felino*. They are excellent hunters, and live entirely on game, which they pursue to the tops of the highest trees. Their flesh is white, and good for eating. Their skin and hair are well known in France as a valuable branch of commerce; *Charlevoix, tom. 3. p. 333.*

‡ *Viſta racemiſero lyncas dedit India Baccho; Ovid. Metamorph.*

§ Plin. Hist. Nat. lib. 8. c. 21. et lib. 28. c. 8.—It is to be observed, that Pliny here speaks of the lynx, and not of the *lupus-cervarius*; that all the qualities and virtues of the hair, the claws, the urine, &c. relate to the lynx only, which he mentions as an

uncommon

from Baron de Balicze *. 'You have not mentioned,' says the Baron to Gefner, 'in your history of animals, the Indian or African lynx. As Pliny has spoken of it, the authority of so great a man induced me to send you a drawing of this animal, that you may have an opportunity of describing it. This drawing was made at Constantinople. The animal is very different from the German lynx, being larger, having rougher and shorter hair,' &c. Gefner, without making any reflections on this letter, contents himself with relating the substance of it, and informing us, in a parenthesis, that the drawing never arrived.

To prevent similar mistakes, let us observe,
 1. That the poets and painters have yoked the chariot of Bacchus with tigers, panthers, or lynxes, according to their own fancy, or, rather, because all ferocious animals, with spotted skins, were equally consecrated to this God. 2. That it is the word *lynx* which creates all this ambiguity; for it is evident, by comparing different
 O 2 passages

uncommon *Æthiopian* monster, and not to the *lupus-cervarius*, which he positively asserts was sent from Gaul to the public spectacles of Rome. The only thing which might create a suspicion that the *chaus* or *lupus-cervarius* of Pliny was not our lynx, is his affirming that it had the figure of the wolf, and the spots of the panther. But this doubt will vanish, when it is considered, that, of all the carnivorous animals in the northern regions, the lynx alone has his skin spotted like that of the panther.

* Gefner, Hist. quad. p. 683.

passages of Pliny with each other *, that the Æthiopian animal he calls *lynx*, is by no means the same with the *chaus* or *lupus-cervarius*, which is a native of the northern regions; and that, by a similar misapplication of the name, the Baron de Balicze has been deceived, though he regards the Indian lynx as a different animal from the German *luchs*, or our lynx. This African or Indian lynx, which he says was larger and more beautifully spotted than our lynx, was perhaps a kind of panther. Whatever may be in this last conjecture, it is plain, that the lynx, of which we are here treating, exists not in warm climates, but is confined to the northern countries of the Old and New Continents. Olaus † says, that this animal is common in the forests of the northern parts of Europe. Olearius ‡ makes the same remark, when treating of Muscovy. Ro-

* Pompeii Magni primum ludi ostenderunt Chaum, quem Galli Rhaphium vocabant, effigie lupi, pardorum maculis; *Plinii lib. 8. c. 19.*—Sunt in eo genere (scilicet luporum), qui cervarii vocantur, qualem é Gallia in Pompeii Magni arena spectatum diximus; *Plin. lib. 8. c. 22.*—Lyncas vulgo frequentes et sphingas, fusca pilo, mammis in pectore geminis, Æthiopia generat, multaque alia monstra similia; *Plin. lib. 8. c. 21.*—From these three passages, it is apparent, that the *chaus* and the *lupus-cervarius* are the same animal, and that the lynx is a different creature. Pliny seems to have been deceived by the name, when he tells us that the figure of the lynx resembled that of the wolf. The lynx, like the wolf, is an animal of prey nearly of the same size, and howls something like the wolf; but, in every other article, these animals are totally different.

† Hist. de gent. septent. ab Olao Magno, lib. 18. p. 139.

‡ Relat. d'Adam Olearius, tom 1. p. 121.

finus Lentilius tells us, that the lynx is common in Courland and Lithuania, and that those of Cassubia, a province of Pomerania, are smaller and not so much spotted as those of Poland and Lithuania *. Lastly, to these testimonies, Paulus Jovius adds, that the finest skins of the lynx come from Siberia †, and that they constitute a great article of trade at Ustivaga, a town six hundred miles distant from Moscow.

This animal which, as we have seen, prefers cold to temperate countries, is one of those that might pass from the one Continent to the other by the lands to the North; and, accordingly, he is found in North America. Travellers have described him in a manner not to be misunderstood ‡: Besides, his skin is an article of commerce between America and Europe: The lynxes of Canada, as formerly remarked, are only smaller and whiter than those of Europe; and it is this difference of size that has procured to them the name of *cati-cervarii*, and has induced

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the

* Auctuarium Hist. Nat. Poloniae, Gabriele Rzaczynski.

† Vid. Aldrov. de quad. digit p. 96.

‡ Among the Gaspeians, there are three kinds of wolves. The *lupus-cervarius* has silver coloured hair, and two pencils of black hair on his head (he means the ears). His flesh is pretty good, though its smell be too rank. This animal is more terrible to behold than cruel; and his skin makes an excellent fur; *Nouv. relat. de la Gaspésie, par le Père Chretien Leclercq. p. 488.*—In the country of the Hurons, the *lupus-cervarius* is more frequent than the common wolves, which are there very scarce; *Voyage de Sagaaar Theodat, p. 307.*—In America, there are rapacious animals, as leopards, and *lupi-cervarii*, but no lions; *Singularités de la France antartique, par Thevet, p. 103.*

the nomenclators to regard them as a distinct species *. Without pronouncing decisively concerning this matter, the Canadian and Russian lynxes appear to be the same species ; 1. Because the difference of size is not very considerable †, being nearly proportioned to that which takes place in all the quadrupeds which are common to both Continents. The wolves, the foxes, &c. of America, being less than those of Europe, the same phaenomenon should be exhibited in the lynx. 2. Because these animals, even in the north of Europe, vary in size ‡ ; and two kinds, a smaller and a larger, have been mentioned by authors. 3. Because they equally love cold climates, and, being of the same dispositions, the same

* M. Linnaeus, who lives at Upsal, and ought to know this animal, since it is a native of Sweden and the adjacent countries, first distinguished the *lupus-cervarius* from the *catus-cervarius*. He denominates the first, *felis caudâ truncatâ, corpore rufescente maculato*; *Syst. Nat. edit. 4. p. 64. et edit. 6. p. 4.* ; and the second, *felis caudâ truncatâ, corpore albo maculato*; *Syst. Nat. ibid.* In Swedish, he calls the first *Warglo*, and the second *Kattlo*; *Faun. Suec. p. 2.* But, in his last edition, he no longer distinguishes these animals, and mentions only one species under the following short description: *Felis cauda abbreviata apice atra, auriculis apice barbatis*. Hence it appears, that this author, who at first separated the *lupus cervarius* from the *catus-cervarius*, was persuaded, as I am, that these two animals constitute but one species.

† *Felis alba maculis nigris variegata, caudâ brevi*. . . . *Catus cervarius, le chat-cervier*—*Felis auricularum apicibus pilis longissimis praeditis, caudâ brevi*. . . . *Lynx, le loup-cervier*; *Briffon, Regn. anim. p. 274. et 275.*

‡ *Lynxes ambae (magnae et parvae) corporis figurâ similes sunt, et similiter utrisque oculi suaviter fulgent, facies utrisque alacris perlucet, parvum utrisque caput, &c.*; *Oppianus,*

same figure, and differing only in size and some shades of colour, these characters seem sufficient to authorise us to pronounce that they belong to the same species.

The lynx, of which the ancients said that his sight penetrated the most opaque bodies, and whose urine became a precious stone, called *Lapis lyncurius*, is an animal equally fabulous as the qualities they have ascribed to him. This imaginary lynx has no other relation to the true lynx than the name. We must not, therefore, in imitation of most naturalists, attribute to the former, which is a real being, the qualities of this creature of imagination, the existence of which even Pliny himself seems not to believe; for he speaks of it as an extraordinary animal, and ranks it along with the sphynx, the pegasus, the unicorn, and other prodigies or monsters brought forth in Æthiopia, a country of which the ancients had no knowledge.

Our lynx, though his sight cannot penetrate stone-walls, has brilliant eyes, a mild aspect, and an agreeable and sprightly air. His urine is not converted into precious stones; but he covers it with earth like the cats, to whom he has a great resemblance, and whose manners and love of cleanliness are the same. He has nothing in common with the wolf, but a kind of howling, which, being heard at a great distance, often deceives the hunters, and makes them imagine they are pursuing a wolf. This alone is, perhaps,
sufficient

sufficient to account for the name *wolf*, which has been given to him, and to which, to distinguish him from the real wolf, the hunters have added the epithet *cervarius*, because he attacks the stag; or rather because his skin is variegated with spots like that of the young stag. The lynx is smaller, and stands lower on his legs than the wolf*. He is generally about the size of a fox. He differs from the panther and ounce by the following characters: His hair is longer, and his spots less lively, and not so well defined. His ears are much longer, and terminate in a pencil of black hairs. His tail is much shorter, and black at the extremity. The circle of his eyes is white, and his aspect is softer and less ferocious. The skin of the male is more spotted than that of the female. He does not run out, like the wolf, but walks and springs like the cat. He lives by hunting, and pursues his prey to the tops of the highest trees. The wild cats, the pine weasels, the ermines, and the squirrels, are unable to escape him. He likewise seizes birds; and watches the approach of stags, fallow-deer, hares, &c. darts down upon them, seizes them by the throat, sucks their blood, and opens their skull to devour their brain; after which, he often abandons them, and goes in quest of a fresh game. He seldom returns to his prey; which is the reason why the lynx has been said to have

* Lynces nostrae lupis minores sunt, tergo maculosae; Stumphius.

a very bad memory. The colour of his hair changes with the climate and the season. The winter furs are more beautiful and richer than those of summer. His flesh, like that of all carnivorous animals, is not good*.

S U P P L E M E N T.

We here give the figure of a Canadian lynx from an excellent preparation in the royal cabinet. It is only two feet three inches long from the tip of the nose to the origin of the tail, and from twelve to thirteen inches high. The body is covered with long grayish hair, mixed with white, and striped with yellow. The spots are more or less black. The head is grayish, blended with white and bright yellow hairs, and striped, as it were, with black in some parts. The tip of the nose, as well as the margin of the under jaw, is black. The whiskers are white, and about three inches long. The ears are two inches three lines high, garnished in the inside with large white hairs, and with yellowish hairs on the edges. The outer side of the ear is covered with mouse-coloured hair, and the external margins are black. At the extremity of each ear, there is a large thin pencil of black hairs, seven

* Rzaczynsky, auct. Hist. Nat. Pol. p. 314.

seven lines high. The tail, which is thick, short, and well furnished with hair, is only three inches nine lines in length; from the extremity to the middle, it is black, and afterwards of a reddish white colour. The under part of the belly, the hind-legs, the inside of the fore-legs, and the feet, are of a dirty white. The claws are white, and about six lines long. This lynx has a great resemblance, both in the spots and nature of the hair, to that whose figure we have given; but it differs in the length of the tail and the pencils on the ears. The Canadian lynx, therefore, may be regarded as a variety very different from the lynx of the Old Continent. It may even be said to make a near approach to the caracal, by the pencils on its ears; but it differs from the caracal still more than from the lynx, by the length of the tail and the colour of the hair. Besides, the caracal is only found in warm countries; but the lynx prefers cold climates. The pencil of hair upon the tips of the ears, which is regarded as a distinctive character, is only accidental, and appears in animals of this species, and even in the domestic and wild cats. Of this we have given an example in the supplement to the article *cat*. Hence we persist in believing that the American lynx is only a variety of the European species.

The Norwegian lynx, described by Pontoppidan, is white, or of a bright gray colour, interspersed with deep spots. Its claws, like those of other

other lynxes, resemble the claws of cats. He elevates his back, and springs upon his prey with equal quickness and address. When attacked by a dog, he lies down upon his back, and repels the enemy by repeated strokes of his claws. This author adds, that there are, in Norway, four species; that some of them approach the figure of the wolf, others that of the fox, others that of the cat, and, lastly, that there are others whose head resembles that of a colt. This last fact, which I believe to be false, creates the most violent suspicion with regard to all the rest. The author adds some articles which are more probable.

‘The lynx,’ says he, ‘does not go about the country, but conceals himself in woods and caverns. He makes his retreat deep and winding, from which he can be expelled by fire and smoke only. His sight is piercing, and he spies his prey at a very great distance. He often eats no more of a sheep or a goat than the brain, the liver, and the intestines; and he digs under the doors, in order to gain admission into the sheep-folds*.’

The species of the lynx is not only spread over Europe, but all the northern provinces of Asia. In Tartary, they are called *Chulon* or *Chelafon* †. Their skins are highly valued, and, though very common, sell equally dear in Norway,

* Pontoppidan’s Nat. Hist. of Norway.

† Hist. gen. des Voyages, tom. 6. p. 602.

Norway, Russia, and as far as China, where they are much used for muffs and other furs.

That the pencils of hair on the tips of the ears form not a distinctive character, appears from this fact, that there exists, in the district of Alger, called *Constantine*, a species of caracal, without these pencils, and which resembles the lynx, except that its tail is longer. The colour of its hair is reddish, with longitudinal black stripes from the neck to the tail, detached spots on the flanks disposed in the same direction, a black half-circle on the top of the fore-legs; and a band of rough hair on the four legs, extending from the extremity of the foot to above the heel; and this hair inclines upward, instead of downward, like the hair of every other part of the body.

The

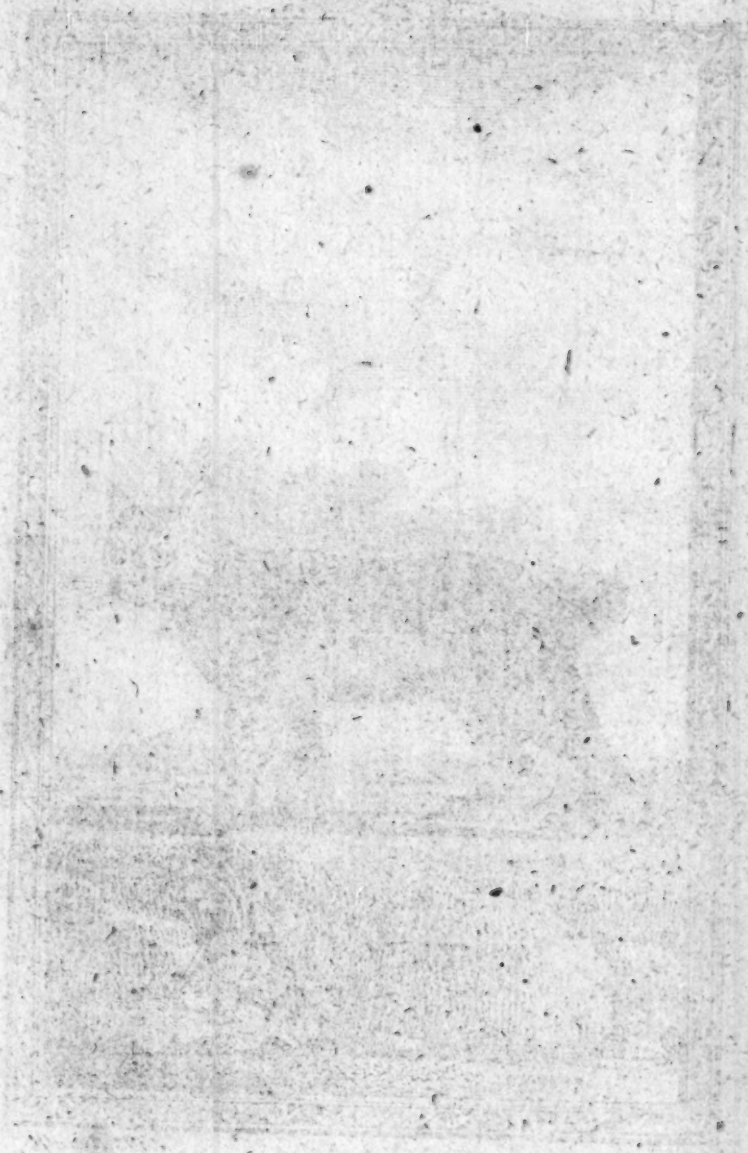
Plate CXXIV.



A. Bell & Co. del.

LYNX.

1797



1797

Plate CXXV.



A. Wallisculp.

CANADIAN LYNX.

THE CARACAL*.

THOUGH the caracal resembles the lynx in size, figure, aspect, and the pencil of black hair on the tips of the ears, we are of opinion, from the disparities between these two animals, that they belong to different species. The caracal is not spotted like the lynx; his hair is rougher and shorter; his tail is longer, and of a uniform colour; his muzzle is also more lengthened; his aspect is less mild, and his disposition more ferocious. The lynx inhabits cold or temperate climates only; but the caracal is never found except in warm countries. It

* The Persian cat, with a lengthened face, and small head, has long slender ears, terminated with a long tuft of black hairs. The inside and bottom of the ears, and pose, are white. The eyes are small; the upper part of the body is of a pale reddish brown colour, and the tail is rather darker. The belly and breast are whitish; the limbs are strong, and pretty long. The tail is about half the length of the body. *Pennant's Synops. of quad. p. 189.*

In Turkish, *Karrak-kulak*; in Arabic, *Gat el Challah*; in Persian, *Siyah-gush*. In all these three languages, the denominations signify *the cat with black ears*.

Siyah-gush; *Charleton, exercitationes, p. 21. Raii Synops. quad. p. 168.*

Siyah-gush. Auricula atra. Scheich Saadi in libro Gulistan seu rosario, sexcentis circiter ab hinc annis conscripto, quem Persice et Latine edidit Georg. Gentius. Ubi vide apologum Leonis et auriculæ atrae, pag. 81.

The lion's provider, or guide, according to several travellers.

is from these differences of disposition and climate that we have referred them to different species, as well as from the inspection and comparison of the two animals, both of which we have examined and drawn from the life.

This animal is common in Barbary, in Arabia, and in all the countries inhabited by the lion, the panther, and the ounce. Like them, he lives on prey; but, being smaller and weaker, it is with difficulty he procures subsistence; for he is generally obliged to be contented with what they leave. He keeps at a distance from the panther, because that animal exercises its cruelties after being fully gorged with prey. But he follows the lion, which, after a full repast, never injures any creature. The caracal feasts upon the offals of the lion's table, and sometimes follows, or goes before him, at no great distance, having nothing to apprehend from his rage; because he is unable, like the panther, to pursue the caracal to the tops of the tallest trees. For all these reasons the caracal has been called the lion's guide or provider *. The latter, whose smell is not acute, employs the former to scent animals

* The karacoulacs are animals somewhat larger than cats, and of the same make. They have black ears, nearly half a foot long, and from this circumstance they derive their name, which signifies *black ear*. According to the opinion of the natives, they serve as pioneers to the lion; for they go a little before, explore those places where prey is to be expected, and are rewarded with a share. When this animal gives the alarm

animals at a distance, and rewards him with a part of the spoil *.

The caracal is about the size of a fox, but much stronger and more ferocious. He has been known to attack and instantly tear to pieces a middle-sized dog, which defended itself as long as it was able. He is extremely difficult to tame. However, when taken young, and reared with care, he may be trained to hunting, an employment

harm to the lion, his cry resembles that of one person to another, though the voice is considerably sharper; *Voyage de Thevenot, tom. 2. p. 114.*

* I saw an animal in an iron cage, which the Arabs called the lion's guide. It has so strong a resemblance to a cat, that it has been called the cat of Syria; and I saw another of them at Florence which went under the same name. He is so fierce, that, if any person attempts to take meat from him, he becomes perfectly furious, and, if not appeased, springs instantly upon the spoiler. There are small tufts of hair on the summits of his ears; and he is called the lion's guide, because the latter is said to be deficient in scent. But, when attended by the caracal, which has a very acute nose, he follow his prey, and rewards his conductor with a share; *Voyage d'Orient du Père Philippe, Carme-déchauffé, liv. 2. p. 76.*—The *gat el challah*, *syah gush*, or *karrab-kulah*, i. e. the black cat, or black eared cat, as the Arabic, Persian, and Turkish names signify, is of the bigness and shape of a cat of the largest size. The body is of a reddish brown; the belly of a light colour, and sometimes spotted; the chops are black, the ears of a deep gray, with the tips of them distinguished by small tufts of black stiff hair, as in the lynx. The figure given of this animal by Charleton is not so full in the chops as the Barbary Siyah-gush; *Shaw's travels, p. 175.* The figure given by Charleton does not represent the hair properly; and the head, which is bald, is deprived of its roundness. However, the Siyah-gush of Charleton, and that of Barbary, mentioned by Dr Shaw, belong to the same species with our caracal.

employment of which he is naturally fond, and in which he is very successful, especially if he is never let loose upon any animal that is not his inferior in strength; for he loses courage, as soon as he perceives real danger. In India, he is employed for catching hares, rabbits, and even large birds, whom he surprises and seizes with singular address.

S U P P L E M E N T.

I mentioned under the article *caracal*, that the word *gat el-challab* signified *the black eared cat*. Mr Bruce assures me that it means *the cat of the desert*. In that part of Nubia formerly called *the isle of Meroe*, he saw a caracal which differed in some respects from that of Barbary, of which we have given a figure. The face of the Nubian caracal is rounder, the ears black on the outside, but interspersed with silver-coloured hairs. He has the mule-cross on his withers, like most of the Barbary caracals. On the breast, belly, and inside of the thighs, there are small bright yellow spots, and not blackish brown, as in the Barbary caracal. These are only slight varieties, the number of which might be still augmented; for we find in Barbary, or rather in Lybia, near the ancient Capsa, a caracal with white, instead of black ears. The pencils of these white-eared caracals are thin, short, and black.

Plate CXXVI.



A. Bell's sculp.

CARACAL.

Plate CXXVII



W. B. Smith
CARACAL of BENGAL.

black. They have a white tail, the extremity of which is surrounded with four black rings, and four black patches on the hind part of each leg, like the Nubian caracal. They are also smaller than the other caracals, not exceeding the size of a domestic cat. The ears are white within, and covered on the outside with bushy hair, of a lively red colour *. If this difference in size were constant, it might be alledged that there are two species of caracals in Barbary, the one large with black ears and long pencils; the other smaller, with white ears and very short pencils. It appears likewise, that these animals, which differ so greatly in their ears, are equally diversified in the form and length of the tail, as well as in the height of the legs; for Mr Edwards has sent us the figure of a caracal from Bengal, whose tail and limbs are vastly longer than those of the common kind.

VOL. V.

P

* Note communicated by Mr Bruce to M. de Buffon

The

The H Y Æ N A*.

THOUGH Aristotle † has left us two characters by which alone this animal is easily distinguished from all others; yet travellers and naturalists have confounded the hyaena with no less than four different species, namely, the jackal, the glutton, the civet, and the baboon. They are carnivorous and ferocious, like the hyaena, and each of them has some resemblance to him, which might give rise to the mistake. The
jackal

* The hyaena has long, sharp pointed, naked ears, an upright mane, high shoulders, and the fore legs higher than the hind legs. The hair on the body is coarse, rough, pretty long, of an ash-colour, marked with long black stripes from the back downwards, and others cross the legs. The tail is very full of hair, sometimes plain, and sometimes barred with black. His size is that of a large dog; but he is very strong made; *Pennant's Synops. of quad. p. 161.*

In Arabic, *Zabo*; in the language of Barbary, *Dubbah*; in Persic, *Kastaar* or *Castar*.

Hyaena; *Arist. Hist. anim. lib. 6. c. 32.* *Plinii, lib. 8. c. 30.*

Taxus porcinus, seu *hyaena veterum*; *Kaempfer, Amoen. p. 411.*

Canis hyaena, cauda recta annulata, pilis cervicis erectis, auriculis nudis, palmis tetradactylis; *Linn. Syst. Nat. p. 58.* The annulated tail, which is also mentioned by Kaempfer, is neither very sensible, nor constant. The hyaena which I examined had every other character ascribed to it by Linnaeus. The tail was not annulated, but only mixed with brown upon a gray ground, which formed a kind of undulations rather than rings.

Lupus marinus; *Belon. aquat. p. 33.* *Gesner. quad.*

† *Aristot. hist. anim. lib. 6. c. 32. lib. 8. c. 5.*

jackal inhabits the same countries, and, like the hyaena, has nearly the form of a wolf, feeds upon dead carcases, and digs them out of the sepulchres. The glutton is equally voracious, has the same appetite for putrified flesh, the same instinct of digging the dead out of their graves; and, though he lives in a different climate, and his figure is very different from that of the hyaena, this conformity of natural dispositions was sufficient to make authors confound them together. The civet is found in the same countries, and, like the hyaena, has long hair along the back, and a particular fissure or orifice. These singular characters, which belong to no other animals, misled Belon into the notion that the civet was the hyaena of the ancients. The baboon has still less resemblance to the hyaena than the other three; for it has hands and feet like those of a man or a monkey. Naturalists, therefore, could be deceived by the name only: In Barbary, the hyaena, according to Dr Shaw, is called *dubbah*, and the baboon, according to Marmol and Leo Africanus, is called *dabub*; and, as the baboon is found in the same climates, digs the earth, and is nearly of the same form with the hyaena, these affinities first deceived travellers, and naturalists copied the blunder, without sufficient examination. Even those who have clearly distinguished these two animals, have given to the hyaena the name of *dabub*, which belongs to the baboon. Hence

the hyaena is not the *dabub* of the Arabians, nor the *jeseſ* or *ſeſeſ* of the Africans, as we are told by naturalists*. Neither should he be confounded with the *deeb* of Barbary. But, to prevent all future confusion arising from names, we shall, in a few words, give a detail of the researches we have made with regard to these animals.

Aristotle employs two names, *hyaena* and *glanus*. To be convinced that these appellations denote the same animal, we have only to compare the passages where they occur †. The ancient Latins preserved the name *hyaena*, and never used that of *glanus*. Among the modern Latins, we find the words *ganus* or *gannus* ‡, and *belbus*,

* Charleton, Exercit. p. 14. Briffon. Regn. anim. p. 234.

† Hyæna colore lupi prope est, sed hirsutior, et juba per totum dorsum prædita est. Quod autem de ea fertur, genitale simul et maris et foeminae eadem habere, commentitium est. Sed virile similiter, atque in lupis et canibus, habetur. Quod vero foemineum esse videtur, sub cauda positum est, figura simile genitali foeminae, sed sine ullo meatu. Sub hoc meatus excrementorum est. Quinetiam foemina hyæna præter suum illud etiam simile, ut mas habet sub cauda sine ullo meatu, a quo excrementorum meatus est, atque sub eo genitale verum continetur. Vulvam etiam hyæna foemina, ut cæterae hujuscemodi foeminae animantes, habet. Sed raro hyæna foemina capitur, jam inter undecim numero, unam tantum cepisse, venator retulit quidam; *lib. 6. cap. 32.*—Quam autem alii glanum, alii hyænam appellant, corpore non minore, quam lupo est, juba qua equus, sed seta durior, longioreque, et per totum dorsum porrecta. Molitur hæc insidias homini, canes etiam vomitionem hominis imitando capit, et sepulchra effodit humanæ avida carnis, ac eruit; *Arist. hist. anim. lib. 8. cap. 5.*

‡ Gesner. hist. quad. p. 555.

*belbus**, substituted for *hyaena*. According to Rafis †, the Arabians call the hyaena *kabo*, or *zabo*, names seemingly derived from the word *zeeb*, which, in their language, signifies a wolf. In Barbary, the hyaena is called *dubbah*, as appears from the description given of it by Dr Shaw ‡. In Turkey, the hyaena, according to Nieremberg ||, is named *zirtlam*, in Persia, *kaf-taar*, according to Kaempfer §, and *castar*, according

P 3

* Belbi, id est, hyaenae, decem fuerunt sub Gordiano Romae. Julius Capitolinus ; *Id. ibid.*

† Gefner, hist. quad. p. 555.

‡ The *dubbah* is of the badger-kind, near the bigness of a wolf. Its neck is so remarkably stiff, that, in looking behind, or snatching obliquely at any object, it is obliged, in the same manner with the hog, the badger, and crocodile, to move the whole body. It is of a buff colour, inclining to be reddish, with some transverse streaks of a dark brown ; whilst the hairs upon the neck are near a span long, which it can occasionally erect, notwithstanding they are much softer than the bristles of a hog. The paws are large and well armed, serving, in want of other food, to lay open the *medulla* of the *palmeta*, or *dwarf palm* ; to dig up the roots of plants, and sometimes the graves of the dead. . . . Next to the lion and panther, the *dubbah* is the fiercest of the wild beasts of Barbary ; and, from the characteristics of having long hair upon its neck, like a mane, moving its neck with difficulty, and disturbing the graves of the dead, it may lay a greater claim to the hyaena of the ancients than the civet cat, or the badger, which are smaller animals ; *Shaw's travels*, p. 173.

|| Euseb. Nieremb. hist. nat. p. 181.

§ Kastaar, id est, *taxus porcinus*, five hyaena veterum, (*Vid. in Tab. § 4. No 4.*) animal est porci, seu scrophae grandioris, magnitudinem ejusdemque formam corporis obtinens, si caput, caudam, et pedes excipio. Pilis vestitur longis, incanis, in ora dorsi,

ding to Pietro della Valle *. These are all the appellations which can, with propriety, be referred to the hyaena. It is probable, however, that the *lycaon* and *crocota* of India and Æthiopia, mentioned by the ancients, are no other than the hyaena. Porphyry says expressly †, that the Indian *crocota* is the hyaena of the Greeks. Indeed, all that the ancients have said, whether true or fabulous, concerning the *lycaon* and *crocota*,

dorsi, porcino more, longioribus, pene spithamalibus, apicibus nigris; caput habet lupino, non dissimile, rostro nigro, fronte longiori, oculis rostro propinquieribus nigris et volubilibus, auribus nudis, fuscis, et acuminatis; cauda donatur praelonga, villis densis longioribus vestita, circulisque nigricantibus ad decorem intercepta. Crura in orbem quodammodo variegata, posteriora prioribus sunt longiora; pedes in quaternos ungues divisi, quos lupino more contrahit, ne videantur. Corpus habet striis a dorso ventre tenuis pictum paucis, latis, et inaequalibus, alternatim fuscis et nigris. Mira vi terram effodit, cavernisque abditum se illatebrare amat, diu sine cibo vivit, et raptu victum quaerit. . . . Ferox et carnivora bestia, quippe in humana saeviens cadavera, quae noctu ex tumulis impigre effodit, &c.; *Kaempfer, amoenitates*, p. 411. 412.

* At Schiras, I saw a living animal, which the Persians called *castar*. It was as strong as a large dog. It was of the size, figure, and colour of a tiger, (he means the panther), and the head and muzzle were long, like those of a hog. This animal is said to feed on human flesh, and to dig up the carcasses from the sepulchres, which made me conjecture that it might be the hyaena of the ancients. However this may be, it was a ferocious creature which I had never before seen; *Voyage de Pietro della Valle*, tom. 5. p. 343.

† Porphyrius, in eo opere quod inscripsit de abstinentia ab usu carniū, hyaenam dicit ab Indis appellari *crocutam*; *Gillius apud Gesner. Hist. quad.* p. 555.

cuta, apply to the hyaena. But we shall postpone all farther conjectures on this subject, till we come to treat of fabulous animals, and the relations they have with real ones.

The panther of the Greeks, the *lupus canarius* of Gaza, and the *lupus Armenius* of the Arabians and modern Latins, seem to be the same animal, namely, the jackal, which Pollux says is called *cical* by the Turks *, or *thacal*, according to Spoon and Wheeler †: The modern Greeks call it *zachalia* ‡, the Persians *siechal* ||, or *scha-chal* §, and the Moors of Barbary *deeb* **, or *jackal*. We shall retain the name *jackal*, because it has been adopted by some travellers, and content ourselves with remarking in this place, that he differs from the hyaena not only in size, figure, and colour, but likewise in his manners; for the jackals commonly go in troops, and the hyaena is a solitary animal. Our modern nomenclators, in imitation of Kaempfer, call the jackal *lupus aureus*, because his hair is of a lively yellow colour.

The jackal, as we have seen, is an animal very different from the hyaena, as well as from the glutton, which last is peculiar to the northern regions of Lapland, Russia, and Siberia: It is even

* Gesner. hist. quad. p. 675.

† Travels of Jacob Spoon and George Wheeler, vol. 1. p.

114. ‡ Id. ibid.

|| Voyage de Chardin en Perse, tom. 2. p. 29.

§ Kaempfer, amoenit. exot. p. 413.

** Shaw's travels, p. 174.

even unknown in the temperate climates, and, consequently, could never inhabit Arabia, and the other warm countries frequented by the hyæna. Besides, the figure of the glutton resembles that of a very large badger; his limbs are so short, that his belly nearly reaches to the ground; he has five toes both on the fore and hind-feet; no mane, and black hair over all the body, except sometimes a few brownish yellow hairs on the flanks. In a word, he possesses nothing in common with the hyæna, but his voracity. He was likewise unknown to the ancients, who had not penetrated far into the northern regions of Europe. Olaus* is the first author who mentions this animal, which he has called *gulo* on account of its gluttony. He was afterwards denominated *rosomak* in the Slavonian language†, and *jerff*, or *wildfras* in the German. The French travellers have called him *glouton*‡. In this species there are varieties, as well as in that of the jackal, which shall be pointed out in the particular history of those animals. But these varieties, instead of making him

* Inter omnia animalia quæ immuni voracitate creduntur insatiabilia, gulo in partibus Sueciae septentrionalis, præcipuum suscepit nomen, ubi patrio sermone *Jerff* dicitur, et lingua Germanica *Wildfras*, Slavonice *Rosomako*, a multa commestione; Latina vero non nisi fictitio gulo, videlicet a gulositate, appellatur; *Hist. de gent. septent. ab Olao Magno*, p. 138.

† Hist. de la Laponie, par Scheffer, p. 314.—Rzaczynski, *Aust. hist. nat. Polon.* p. 311.

‡ Relation de la Grande Tartarie, p. 8.

him approach nearer the hyaena, remove the two species to a still greater distance.

The civet has nothing in common with the hyaena, except the fissure or sac under the tail, and the mane along the neck and spine. It differs from the hyaena in the figure and size of the body, being one half smaller. Its ears are short and covered with hair, while those of the hyaena are long and naked. Besides, it has shorter limbs, and five toes on each foot; but the legs of the hyaena are long, and he has only four toes on each foot. Neither does the civet dig the earth in quest of dead bodies. It is, therefore, extremely easy to distinguish these animals.

With regard to the baboon, which is the *papio* of the Latins, he seems to have been mistaken for the hyaena by an ambiguity of names, to which a passage of Leo Africanus *, copied by Marmol †, seems to have given rise. The *dabuh*, say these two authors, ‘is of the size and figure of the wolf, and tears dead bodies from the sepulchres.’ The similarity of the name *dabuh* with *dubbah*, which last denotes the hyaena, joined to the avidity for dead carcases, common

to

* *Dabuh Arabica appellatione Africanis Sefef dicitur. Animal et magnitudine et forma lupum refert, pedes et crura hominis similes; reliquo bestiarum genere non est noxius, sed humana corpora sepulchris evellit ac devorat; Leon. Afric. de Afric. descript. tom. 2. p. 756.*

† L’ Afrique de Marmol, tom. 1. p. 57.

to the *dabuh* and *dubbah*, have made them be mistaken for the same animal, though it be expressly mentioned in the very passages we have quoted, that the *dabuh* has hands and feet like those of a man, which corresponds with the baboon, but is inapplicable to the hyaena.

By looking at Belon's figure of the *lupus marinus* *, which Gesner has copied †, this animal might be mistaken for the hyaena, because there is a considerable resemblance. But this description corresponds not with our hyaena; for he tells us, that the *lupus marinus* is an amphibious animal, which feeds on fishes, and has sometimes been seen on the coasts of the British ocean. Besides, Belon mentions none of the peculiar characters which distinguish the hyaena from all other quadrupeds. Belon, prepossessed, perhaps, with the notion that the civet was the hyaena of the ancients, has given the figure of the true hyaena, under the name of the *lupus marinus*; for the characters of the hyaena are so singular, that it is almost impossible to mistake him. He is, perhaps, the only quadruped that has four toes on each foot. Like the badger, he has an orifice under the tail, which penetrates not into the body. He has long, straight, naked ears; a head shorter and more square than that of the wolf; but his legs, particularly the hind-ones, are longer. His eyes are placed like those of a dog.

The

* Belon, de aquatil. p. 35.

† Gesner. hist. quadrup. p. 674.

The hair of his body and mane is of a dark gray colour, mixed with a little yellow and black, and transverse dusky undulations. He is of the size of a wolf, only his body is shorter and more compact.

This savage and solitary animal lives in the caverns of the mountains, in the clefts of rocks, or dens which he digs for himself in the earth. His disposition is extremely ferocious, and, though taken young, can never be tamed*. Like the wolf, he feeds on prey; but he is stronger and more daring. He sometimes attacks men, and rushes with fury upon cattle of all kinds†. He follows

* Hyænam marem Ispahani curiositatis causa alebat dives quidam *Gabr* seu ignicola, suburbii *Gabristaan*, captam dum ubera sugeret, in latibulis vicini montes. Ad eam spectandam progressus, bestiam eo situ depinxi, quo in fovea subdiali duarum orgyarum profunditatis (cui inclusa servabatur) cubantem inveni. Desiderio nostro possessor omni ex parte satisfactorius eam educi quoque curavit in aream; quod ut tuto fieret, demisso fune rostrum prius illaqueabat; mox descendentes servi protracta utrinque labra funiculo ex pilis contorto, strenue colligabant. Hoc facto educitur, laxatoque fune, qui rostrum fraenabat, bestia latius discurrere permittitur, non semel apprehensa, more athletico in terram projicitur, ac variis laceffitur vexationibus; quibus illa irritò nocendi nisu obluctata, subinde mugitum edidit vitulino simillimum. Narrabant Gabri sic fraenatam nuper se opposuisse duobus leonibus, quos aspectante oculo serenissimo in fugam verterit; *Kaempfer, amoenitates*, p. 412. 413.

† In Abyssinia, the wolves are small and timorous. But they have an animal called hyæna, which is extremely bold and rapacious. He attacks men in the open day as well as during the night, and often breaks down the doors and inclosures of the sheep-folds; *Hist. de l'Abissinie, par Rudolf*, p. 41.

follows the flocks, and often breaks down the doors of stables, and the inclosures of the sheep-folds. His eyes sparkle in the dark ; and he is said to see better in the night than in the day. All naturalists agree, that his cry resembles the groanings of a man who vomits, or rather the lowing of a calf, according to Kaempfer *.

The hyaena defends himself against the lion, is not afraid of the panther, and attacks the ounce, which is not able to resist him. When prey fails, he digs the earth with his feet, and tears out the dead bodies of animals and men, who, in the countries which he inhabits, are equally buried in the fields. He is found in almost all the warm climates of Africa and Asia ; and the animal called *farasse* at Madagascar †, which in figure resembles the wolf, but is larger, stronger, and more cruel, is perhaps the same with the hyaena.

A greater variety of absurd stories have been related concerning the hyaena than any other quadruped. The ancients gravely tell us, that the hyaena is alternately male and female ; that, when it brings forth, sucks, and rears its young, it continues to be a female during the whole year ; but that, the following year, it resumes the

* Kaempfer, loc. supra citat.

† In Madagascar, there are animals called *farasses*, of the same nature with the wolf, but still more voracious ; *Mem. pour servir à l'hist. des Indes Orient. p. 168.*—See also *l'hist. de Orinoque, par Joseph Jumilla, tom. 3. p. 603.*

Plate CXXVIII.



HYENA.

the functions of the male, and makes its companion submit to the lot of the female. This story, it is apparent, has no other foundation than the fissure under the tail, which is common to the male as well as the female, independent of the organs of generation peculiar to both sexes, which, in the hyaena, are similar to those of all other quadrupeds. The hyaena has been said to imitate the human voice, to remember the names of shepherds, to call upon, to fascinate, and to deprive them of the power of motion; and, at the same time, to terrify the shepherdesses, to make them run from and neglect their flocks, to render them frantic with love, &c.—All this might happen without the hyaena! and I here stop, lest I should, with Pliny, incur the censure of delighting in compiling and relating ridiculous fables.

S U P P L E M E N T.

In the year 1773, I saw a male hyaena at the fair of St Germain. The hyaena above described was perfectly ferocious; but this male, having been tamed when young, was remarkably gentle; for, though his master often provoked him with a cudgel, in order to make him erect his mane, he instantly afterwards seemed to forget the affront. He played with his keeper, who put his hand into the animal's mouth, without
the

the least apprehension of danger. This hyaena was precisely of the same species with that whose description I have formerly given; and I have nothing to add to it, except that the tail of this male was all white, without any mixture of other colours. He was somewhat larger than the first, being three feet two inches long, from the extremity of the muzzle to the origin of the tail, and carried his head lower than is represented in the figure. His height was two feet three inches; and his hair was white, intermixed with streaks and spots of black, both on the body and legs.

In the south part of the island of Meroë, there are hyaenas much larger than those of Barbary. Their muzzle is longer, and has a greater resemblance to that of a dog. This animal is so strong, that he carries off a man to the distance of a league or two, without stopping. His hair is coarse, browner than that of the other kind, and the transverse streaks are blacker. His mane erects not from the head, but from the tail. Mr Bruce was the first who remarked of this hyaena, as well as that of Syria and Barbary, that, when forced to fly, they are lame of the left hind-leg, which continues so remarkably for about a hundred paces, that the animal seems as if he would tumble down on his left side *.

The

* Note communicated to M. de Buffon by Mr Bruce.

The CIVET * and the ZIBET †.

IT is the opinion of most naturalists, that the perfume called *musk* was furnished by one species of animal only. I have seen two of these animals, which, it must be allowed, have many essential relations, both in their external and internal structure; but they differ from each other by

* The civet has short rounded ears, sky-blue eyes, a sharp nose, black at the point; the sides of the face, chin, breast, legs, and feet, are black; the rest of the face, and part of the sides of the neck, are white, tinged with yellow. From each ear three black stripes proceed, and end at the throat and shoulders. The back and sides are cinereous, tinged with yellow, and marked with large dusky spots disposed in rows. The hair is coarse, and that on the top of the body is longest, standing up like a mane. The tail is sometimes wholly black, and sometimes spotted near the base. The length, from nose to tail, is about two feet three inches, that of the tail is fourteen inches; and the body is pretty thick; *Pennant's synopsis of quad. p. 234.*

Animal Zibethi; *Caius apud Gesner, p. 837.*

Civette; *Mem. pour servir a l'hist. des animaux, prem. partie, p. 157.*

Civet cat; *Raii synopsis. quad. p. 178.*

Coati civetta vulgo; *Klein. quad. p. 73.*

Meles fasciis et maculis albis, nigris, et resuscitantibus variegata; *Briffon. quad. p. 186.*

† The Zibet has short round ears, a sharp long nose, a pale cinereous face. The head and lower part of the neck are mixed with dirty white, brown, and black. The sides of the neck are marked with stripes of black, beginning near the ears, and

by such a number of other characters, as entitle them to be regarded as two distinct species. To the first we have preserved the ancient name of *civet*, and to the second we have given, for the sake of distinction, that of *zibet*. The civet appears to be the same with that described by the gentlemen of the Academy in the *Mem. pour servir a l'histoire des animaux*, by Caius in Gesner, p. 873. and by Fabius Columna, who has given a figure of both male and female in the work of Jean Faber, which is at the end of that of Hernandes *.

The second species, which I have called *the zibet*, seems to be the same animal with that described by M. de la Peyronnie, under the name of *the musk animal*, in the *Mem. de l'Acad. des sciences, année 1731*. Both differ from the civet by the same characters; both want

and ending at the breast and shoulders. From the middle of the neck, along the ridge of the back, extends a black line, reaching some way up the tail; on each side are two others. The sides are spotted with ash-colour and black. The tail is barred with black and white; and the black bars are broader on the upper side than on the lower; *Pennant's Synops. of quad.* p. 235.

Animal de musk; *Mem. de l'Acad. des sciences, année 1731*, p. 443.

Felis Zibethi; *Gesner. hist. quad.* p. 836.

Animal Zibethi; *Aldrov. de quad. digit.* p. 340.

Viverra Zebethi, cauda annulata, dorso cinereo nigroque undatim striato; *Linn. syst. nat.* p. 65.

Note. The nomenclators have not distinguished these two animals; and we know not to which of them their phrases and definitions ought to be referred; because they give no characters which are not common to both.

* Hernandes, *hist. Mex.* p. 580.

want the mane or long hair on the spine; and both have annulated tails. But the civet has neither mane nor rings. It must be allowed, however, that our zibet and the musk animal of M. de la Peyronnie, have not such a perfect resemblance; as to leave no doubt concerning the identity of their species. In the zibet, the rings on the tail are larger than those of the musk animal. The former has not a double collar, and his tail is shorter in proportion to the length of his body. But these differences are slight, and appear to be accidental varieties only, to which the civet must be more liable than other wild animals, because he is kept in a domestic state in many parts of India and the Levant. It is certain, however, that our zibet has a greater resemblance to the musk animal of M. de la Peyronnie than to the civet, and, consequently, the two former may be regarded as belonging to the same species; for we have no absolute certainty that the civet and zibet are not varieties of the same species, because we are ignorant whether they can intermix and produce fertile individuals: And, when we say, that they seem to be different species, we only mean that the presumption is exceedingly strong, since it is founded on permanent differences in their characters, which generally distinguish real species from accidental varieties.

The animal we here call *the civet*, is named

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Q

salanoue

salanoue * in Madagascar, *nzime* or *nzufusi* † in Congo, *kankan* ‡ in Æthiopia, and *kastor* || in Guiney. We are certain that it is the civet of Guiney; for our subject was sent alive from Guiney to St Domingo, to one of our correspondents, who, after feeding it some time, killed it for the conveniency of carriage.

The zibet is probably the civet of Asia, of the East Indies, and of Arabia, where he is called *Zebet* or *Zibet*, an Arabian word, which signifies also the perfume of this animal. He differs from the civet in having a longer and thicker body, a thinner and flatter muzzle, which is somewhat concave on the upper part; while the muzzle of the civet is thicker, shorter, and a little convex. The ears of the former are also larger and more erect. His tail is longer, and better marked with annular spots, and his hair is shorter and softer. He has no mane, or long hair on the neck and spine, no black spots under the eyes, or on the cheeks, which are remarkable characters in the civet. Several travellers have suspected that there were two species of civets; but no body has examined them so minutely as to furnish a distinct description. We have seen both, and, after a careful comparison, we think they are not only different species, but belong, perhaps, to different climates.

These

* Voyage de Flacourt, p. 150. 154.

† Merolla, quoted by M. l'Abbè Prevost. Hist. gen. des Voyages, tom. 4. p. 585.

‡ Id. tom. 3. p. 295.

|| Id. ibid. tom. 4. p. 236. tom. 5. p. 86.

These animals have been called *musk-cats* or *civet-cats*, though they have nothing in common with the cat but agility of body. They rather resemble the fox, especially in the head. Their skin is marked with bands and spots, which have made them be mistaken for the panther, when seen at a distance. But they differ from the panther in every other respect. There is an animal called *the genet*, which is spotted in the same manner, whose head is nearly of the same form, and which, like the civet, has a sac where an odoriferous liquor is secreted. But the genet is smaller than our civet. Its limbs are shorter, and its body much thinner. Its perfume is weak, and of short duration: But the perfume of the civet is very strong; and that of the zibet is still more violent and piercing *. This odorous liquor is found in the fissure which these two animals have near the organs of generation. It is a thick humour, of the consistence of pomatum, and its perfume, though very strong, is agreeable, even when it issues from the body of the animal. This matter of the civet must not be confounded with musk, which is a sanguineous

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humour,

* Notwithstanding all the attention that has long been bestowed in collecting foreign animals at the *Menagerie*, these are the only two of this species which have appeared, or which, among the number of musk animals that we have seen there, had a strong perfume; *Mem. de la Peyronnie inséré dans ceux de l'Académie des Sciences, année 1731, p. 444.* The author, in this passage, is speaking of the musk animal, which we believe to be the same with our zibet.

humour, derived from an animal totally different from the civet or zibet. The animal which produces the musk is a species of roebuck, or goat, without horns, which has nothing in common with the civets but its strong perfume.

Hence these two species of civets have never been properly distinguished. Both have sometimes been confounded with the stinking weasels*, the genet, and the musk deer; they have also been mistaken for the hyaena. Belon, who has given a figure and description of the civet, maintains that it was the hyaena of the ancients†. His error is the more excusable that it is not without some foundation. It is certain, that most of the fables related concerning the hyaena have been derived from the civet. The philters, said to have been extracted from certain parts of the hyaena, and their power of exciting love, indicate sufficiently that the ancients knew the stimulating virtue of the civet's pomatum, which is still used for this purpose in the East. What they have related concerning the uncertainty of the sex in the hyaena, applies still better to the civet; for in the male nothing appears externally but three apertures, so perfectly similar to those of the female, that it is impossible otherwise to distinguish the sex than by dissection.

The

* Aldrovandus remarks, that the stinking weasel, called *coesam* in Virginia, is the civet; *De quad. digit. p. 342*. This error has been adopted by Sir Hans Sloane, who, in his history of Jamaica, says that there are civets in Virginia.

† Belon, *Observ. fol. 93*.

The aperture in which the liquor, or rather thick odorous humour, is found, lies between the other two, and in the same direct line which extends from the os sacrum to the pubis.

The error of Gregoire de Bolivar, with regard to the climates which gave birth to the civets, has been more generally diffused than that of Belon. After telling us, that they are common in Africa and the East Indies, he asserts positively, that they are very numerous in every part of South America. This assertion, transmitted to us by Faber, has been copied by Aldrovandus, and adopted by all succeeding writers on the subject. It is certain, however, that the civets are peculiar to the warm climates of the Old Continent, and could never pass by the north into America, where, in fact, no civets ever existed till they were transported from the Philippine islands, and the coast of Africa. But, as the assertion of Bolivar is positive, and mine negative only, I must give my reasons for proving the falsity of the fact. To enable the reader to judge, beside the remarks I am about to make, I shall quote the passage of Faber entire*. 1. Faber's fi-

Q3

gure

* Hoc animal (zibethicum scilicet) nascitur in multis Indiae Orientalis atque Occidentalis partibus, cujusmodi in orientali sunt provinciae Bengala, Ceilan, Sumatra, Java major et minor, Malipur, ac plures aliae.—In Nova Hispania vero sunt provinciae de Quatemala, Campege, Nicaragua, de Vera-Cruce, Florida, et magna illa insula Sancti Dominici, aut Hispaniola, Cuba, Mantalino, Guadalupa, et aliae.—In regno Peruano animal hoc magna copia reperitur, in Paraguay, Tucuman, Chiraguanas

figure was left to him by Recchi, without any description *. Upon this figure is inscribed *animal zibethicum Americanum*. It has no similarity either to the civet or zibet, but rather resembles the badger. 2. Faber gives a description and figures of the male and female civet, which resemble our zibet; but these civets are not the same animal † with that represented in the first figure; and the second two are not figures of American animals, but of civets belonging to the Old Continent, of which Fabius Columna, fellow-member with Faber of the Lyncean academy, had obtained drawings at Naples, and sent him the figures and descriptions. 3. After quoting Gregoire de Bolivar ‡, concerning the

guanas, Sancta-Cruce, de la Sierra, Jungas, Andes, Chiachiapias, Quizos, Timana, novo regno, et in omnibus provinciis magno flumine Maragnone confinibus, quae circa hoc ferme sine numero ad duo leucarum millia sunt extensa. Multo adhuc plura ejusmodi animalia nascuntur in Brasilia, ubi mercatura vel cambium zibethi sive algaliae exercitatur; *Novae Hisp. anim. Nardi Antonii Recchi imagines et nomina, Joannis Fabri Lyncei expositione*, pag. 539.

* See what Faber remarks, in his preface, concerning the animals of which he is about to treat. Non itaque sis nescius, hos in animalia, quos modo commentarios edimus, mera nostra conscriptos esse, industria ac conjectura, ad quasnam animantium species illa reduci possint, cum in autographo, praeter nudum nomen et exactam picturam, de historia ne gry quidem reperiatur; pag. 465.

† Faber himself is obliged to acknowledge that the figures had no resemblance. Quantum haec icon ab illa Mexicana differat, ipsa pagina ostendit. Ego climatis et regionis differentiam plurimum posse non nego; p. 581.

‡ Miror profecto Gregorii nostri summam in animalium perquisitione industriam et tenacissimam eorum quae vidit unquam

the climates where the civet is found, Faber concludes with admiring Bolivar's great memory, and with telling us, that he heard all this relation from the mouth of its author. These three remarks are alone sufficient to throw a suspicion on this pretended *animal zibeticum Americanum*, as well as upon the assertions of Faber borrowed from Bolivar. But, to render our detection of this error complete, we find, in a tract composed by Fernandes upon American animals, at the end of the volume which contains the Natural history of Mexico by Hernandez, Recchi, and Faber, a passage that flatly contradicts Bolivar, and where Fernandes assures us, that the civet is not an American animal *, but that, in his time, some of them had been transported from the Philippine islands to New Spain †. In fine, by
uniting

quam memoriam. Juro tibi, mi lector, haec omnia quae hactenus ipsius ab ore et scriptis hausi, et posthac dicturus sum, plura rarioraque illius ipsum ope libri memoriter descripsisse, et per compendium quodammodo (cum inter colloquia protractiora et jam plura asserat) tantum contraxisse; p. 540.

* De *Æluro* a quo *Gallia* vocata corradiatur, c. 34. Non me latet vulgare esse, hoc felis vocari Genus Hispanis, quamquam advenam non indigenam, verum qui ex insulis Philippicis coepit jam in hanc Novam Hispaniam adferri; *Hist. anim. et miner. Nov. Hisp. lib. 1. a Francisc. Fernandes, p. 11.*

† The civet is found in the mountains of the Philippine islands. His skin resembles that of the tiger, and he is equally savage, though much smaller. When seized by the hunters, they tie him, and, after taking out the civet from a small purse under the tail, they set him at liberty, that they may have an opportunity of catching him another time; *Relat. de divers voyages, par Thevenot. Relat. des Isles Philippines, p. 10.* We find a number of civets in the mountains of the Philippine islands; *Hist. gen. des voyages, tom. 10. p. 397.*

uniting this positive testimony of Fernandes to that of all the travellers who say that the civets are very common in the Philippine islands, in the East Indies, and in Africa, none of whom mention their even having seen these animals in America, it will no longer admit of a doubt, that the civet is not a native of America, but an animal peculiar to the warm climates of the Old Continent, and was never found in the New till after it had been transported thither. If I had not guarded against mistakes of this kind, which are too frequent, I would have announced our civet as an American animal, because it was transmitted from St Domingo; but, having examined the memoir and letter of M. Pagés, which accompanied the animal, I found that it came originally from Guiney*. These particular facts I consider as so many proofs of the general position, that there is a real distinction between all the animals peculiar to the southern regions of each Continent.

Hence

* This civet was brought from Guiney. It fed upon fruits; but it likewise very willingly eat flesh. While it lived, it diffused, to a great distance, an unsupportable odour of musk; and, after its death, I was not able to endure the scent in a chamber. Immediately above the scrotum, I found a fissure, which was a common passage to two pouches, one on each side of the testicles. These pouches were full of a gray, thick, viscid humour, mixed with long hairs of the same colour with those I found in the pouches. The sacs or pouches were about an inch and a half deep; and their diameter was much larger at the top than at the bottom; *Extrait du Mem. de M. Pagés, Medecin du Roi à Saint Domingue, daté du Cap. le 6. Septembre, 1759.*

Hence the civet and zibet belong to the Old Continent. They differ from each other only by the external marks formerly pointed out. For the structure of their internal organs, and of the reservoirs which contain their perfume, I must refer to the excellent descriptions of Messrs Morand and Pyronnie*. With regard to what remains of the history of these two animals, as it is difficult to refer particular facts to the one in preference to the other, I have comprehended the whole under one article.

The *civets* †, though originally natives of the warm climates of Africa and Asia, can live in temperate and even in cold countries, provided they are defended from the injuries of the weather, and are fed with succulent nourishment. Numbers of them are kept in Holland for the purpose of selling their perfume. The *civet* made at Amsterdam is preferred by our merchants to that which comes from the Levant or India, because the latter is generally less pure. That brought from Guiney would be the best ‡, if

* Mem. de l'acad. des sciences, année 1728, et 1731.

† This word, when used in the plural, denotes both the *civet* and *zibet*.

‡ There are a number of civets in Malabar. It is a small animal, nearly of the figure of a cat, only its muzzle is sharper, its claws less dangerous, and its cry different. The perfume it produces is secreted, like a kind of grease, in an aperture under the tail. It is extracted, from time to time, and never abounds, except the animal be well fed. It constitutes a great trade at Calicut; but, unless a man collects it himself, it is almost always adulterated; *Voyage de Dellon*, p. 11. *Optimum zibethi genus ex Guinea advehitur, sinceritate eximium*; Joannes Hugo.

if the Negroes, as well as the Indians and Levanters *, did not adulterate it with the juices of plants, or with labdanum, storax, and other balsamic and odoriferous drugs.

To collect this perfume, the animal is put into a narrow cage, where he cannot turn himself. The cage is opened at one end; the animal is drawn a little out by the tail, and fixed in this position, by putting a stick across the bars of the cage, which likewise enables the people to lay hold of the hind-legs. They then introduce

a

* The cat which produces the *civet*, has the head and muzzle of the fox. It is large, spotted like a tiger, and extremely ferocious. Every two days, the *civet* is extracted, which is a mucous substance, or thick suet, lying in a cavity under the tail, &c.; *Voyage de la Maire*, p. 100. It is the Guiney *civet* of which the author is here speaking.—I saw at Cairo, in the house of a Venetian, several ferocious animals, nearly of the size of a setting dog, but thicker, and of the figure of a cat. They are called *musk cats*, and are kept in cages. . . . To prevent them from biting, they are confined separately in strong wooden cages, so narrow that the animals cannot turn themselves. . . . The people open so much of the hind part of the cage as is necessary to let the animal's legs be drawn out, without allowing it to turn to wound the person who holds it; and, after collecting the *civet*, the animal is returned to its prison; *Voyage de Pietro della Valle*, tom. 1. p. 401.—The civets, which are called *zebides* in Arabic, are naturally savage, and inhabit the mountains of Æthiopia. Many of them are transported into Europe: They are taken when young, and fed in strong wooden cages, with milk, meal, boiled wheat, rice, and sometimes flesh, &c.; *P'Afrique de Marmol*, tom. 1. p. 57.—*Voyage de Thevenot*, tom. 1. p. 476.—The civets of Java produce as great a quantity of perfume as those of Guiney; but it is neither so white, nor so good; *Suite de la Relation d'Adam Olearius*, tom. 2. p. 350.—Indigenae ita hoc pigmentum adulterant, ut ausim affirmare, nullum zibethum sincerum ad nos deferri; *Prosp. Alp. Hist. Egypt.* p. 239.

a small spoon into the sack that contains the perfume, with which they scrape all its internal sides, and put the matter into a vessel, which is covered up with great care. This operation is repeated two or three times a-week. The quantity of odorous humour depends much on the quality of the nourishment, and the appetite of the animal, which always produces more in proportion to the goodness of its food. Boiled flesh, eggs, rice, small animals, birds, young poultry, and especially fishes, are the best kinds of food, and they ought to be varied in such a manner as to preserve the health and excite the appetite. He requires very little water; and, though he drinks seldom, he discharges urine frequently; and, in this operation, the male is not to be distinguished from the female.

The perfume of these animals is so strong, that it infects all parts of the body: The hair and the skin * are so thoroughly penetrated with this odour, that they retain it long after death; and, during

* The reservoir that contains the odorous liquor of the civet lies below the anus, and above another orifice, which is so similar in both sexes, that, without dissection, all civets appear to be females. . . . As this liquor becomes incommodious, when the reservoirs are too full of it, the animal is provided with proper muscles for squeezing it out. Though it be collected in great quantities in these reservoirs, where it is likewise brought to the highest perfection; yet it seems to be diffused by absorption through the whole skin; for the hair of both our civets had a strong smell; that of the male, particularly, was so impregnated with perfume, that the hand, after gently rubbing his hair, retained an agreeable odour for a considerable time; *Hist. de l'Acad. des sciences, tom. 1. p. 82.*

during life, it is so violent as to be quite insupportable, especially if a person is shut up in the same apartment with the animal. When heated with rage, the odour becomes more highly exalted; and, if the animal be tormented till he sweats, the keeper collects the sweat, which has likewise a strong scent, and serves for adulterating, or at least augmenting the quantity of the perfume.

The civets are naturally savage, and even somewhat ferocious; yet they are easily tamed, so as to be approached and handled without danger. They have strong sharp teeth; but their claws are weak and blunt. Though their bodies are thick, they are active and nimble. They leap like cats, but can likewise run like dogs. They live by hunting and surprising small animals and birds. Like the fox, they enter the court-yards, and carry off poultry. Their eyes sparkle in the dark, and they probably see well during the night. When animal food fails them, they eat roots and fruits. They drink little, never frequent moist places, and spontaneously live among burning sands and arid mountains. In their own climate, they are very prolific; but, though they can live and produce their perfume in temperate regions, they are incapable of multiplying. Their voice is stronger, and their tongue smoother than those of the cat; and their cry has a resemblance to that of an enraged dog.

In

Plate CXXIX.



A. Bell Sculp.

ZIBET.

Plate CXXX.



CIVET.

In Europe, the unctuous perfume extracted from these animals is called *civet*, and *zibet* or *algalia* in Arabia. It is more used in India and the Levant, than in the more northern countries. It is hardly now employed as a medicine; but the perfumers and confectioners make use of it in the composition of their perfumes. The odour of the civet, though strong, is more agreeable than that of musk. But both of them lost their reputation upon the discovery of ambergris, or rather the mode of preparing it: And even the ambergris, which not long ago was esteemed for the excellence of its smell, has ceased to be admired by people of a refined and delicate taste.

S U P P L E M E N T.

In the year 1772, M. de Ladebat sent a live civet to M. Bertin secretary of state. This animal was given by the Dutch governour of Fort Mine, on the coast of Africa, to the captain of one of M. de Ladebat's ships, in the year 1770, and was landed at Bourdeaux in the month of November 1772. On its arrival, it was very weak; but, after some days, resumed its strength, and, at the end of five or six months, its size was augmented about four inches. It was fed with raw and boiled flesh, fish, soup, and milk. It was kept warm during the winter; for it seemed to suffer much from cold, and became less ferocious when exposed to a cool air.

THE

THE GENET*.

THE Genet is a smaller animal than the civets. It has a long body, short legs, a sharp muzzle, a slender head, smooth, soft hair of a shining grayish ash-colour, marked with black spots, which are round and detached on the sides, but unite so closely on the back, that they seem to form continued black bars, stretching along the body. Upon the neck and spine, there is a kind of mane or long hair, forming a black bar from the head to the tail, which last is as long as the body, and marked with seven or eight alternately black and white rings. The black spots on the neck are also in the form of bars; and under each eye there is a very conspicuous white spot. Under the tail, and in the same

* The ears of the genet are a little pointed; the body is slender, and the tail very long. The colour of the body is a tawny red, spotted with black, and the ridge of the back is marked with a black line. The tail is annulated with black and tawny, and the feet are black. Sometimes the ground colour of the hair inclines to gray. It is about the size of a martin, but the fur is shorter; *Pennant*.

La Genetta; *Belon, obs.* p. 73.

Genetta; *Gesner. Hist. quad.* p. 549.

Genetta, vel Ginetta; *Raii Synops. quad.* p. 201.

Viverra genetia, cauda annulata, corpore fulvo nigricante maculata; *Lynn. Syst. Nat.* p. 65.

Mustela cauda ex annulis alternatim albidis et nigris variegata. . . Genetta, La Genette; *Briffon. Regn. anim.* p. 252.

Coati, genetia Hispanis; *Klein. quad.* p. 73.

same situation as in the civets, the genet has an aperture or sac, in which is secreted a kind of perfume; but it is weak, and soon loses its odour. The genet is longer than the martin, to which it has a great resemblance in figure, manners, and dispositions. But the genet seems to be more easily tamed. Belon tells us, that he saw genets in the houses of Constantinople, which were as tame as cats, and allowed to run about, without doing any kind of mischief; and that they are called *Constantinople cats*, *Spanish cats*, or *genet cats*. They have nothing, however, in common with cats, but the art of watching and catching mice. It is, perhaps, because they are found only in Spain and the Levant, that they have obtained the names of these countries; for the word *genet* is not derived from the ancient languages, and is probably a new name, taken from some place frequented by the genet, which we know is very common in Spain, where a certain race of horses are called *genets*. Naturalists pretend, that the genets inhabit only moist places, and the neighbourhood of brooks; and that they are never found in mountains or dry grounds. Their species is not numerous, or at least much diffused. There are none in France*, or in any other province of Europe, except Spain and Turkey. Hence, for their subsistence and multiplication, they require a warm climate; yet none of them appear to be found in the

warm

* See the supplement, p. 256.

warm countries of Africa and India; for the fossane, which is called the *Madagascar genet*, is a different species, and shall afterwards be described.

The skin of this animal makes a light and handsome fur. Genet muffs were very fashionable some years ago, and gave a high price. But, since we learned the art of counterfeiting them, by painting with blacks spots the skin of the gray rabbit, their price has fallen three-fourths, and the mode has changed.

S U P P L E M E N T.

I remarked, under the article *genet*, that the species was not widely diffused, and that there were none of them in France, nor in any other province of Europe, except Spain and Turkey *. I had not then learned that genets were found in our southern provinces, and that they are very common in Poitou, where they are known by the name of *genets*, even to the peasants, who assure us, that these animals inhabit only moist places and the banks of rivulets †.

The Abbé Roubaud, author of the *Gazette d'Agriculture*, and several other useful works, was the first who announced to the public the existence of this animal as a native of France. In

* See above, p. 255.

† Extrait des affiches du Poitou, du Jeudi, 10. Fevrier, 1774.

In the month of April 1775, he sent me a genet which he had killed at Livray in Poitou, and which, except some variations in the colour of the hair, was the same with the Spanish genet. This animal is likewise found in the neighbouring provinces.

‘For these thirty years that I have lived in the province of Rouergue,’ says M. Delpeche, ‘it has been a constant practice among our peasants to bring dead genets every winter to a certain merchant of this place, who told me that they were not numerous, but that they live in the neighbourhood of Villefranche, and burrow, during the winter, in holes, like rabbits. If necessary, I can send you some dead specimens of this creature *.’

We have given a figure of a female genet, which differs so much from the female formerly represented, as to merit a particular description. It was shown at the fair of St Germain in the year 1772. It was fierce, and endeavoured to bite. It was kept in a narrow rowndish cage, which rendered it difficult to be drawn. It was fed with flesh, and had the physiognomy, and all the principal characters of the genet formerly represented. The head was long and slender; the muzzle was also long, and advanced beyond the under jaw. The eye was large, with a narrow pupil. The ears were round; and the hair of the head and body was spotted. The tail was

VOL. V.

R

long

* Lettre de M. Delpeche, Maitre ès arts, à M. de Buffon.

long and bushy. This animal was somewhat thicker than the former. The latter, indeed, was young, for it grew considerably larger in three or four months: We could not learn from what country it had been brought: The keeper had purchased it, seven or eight months before, in London. It was in perpetual motion, never resting, except during the time it slept.

The genet now under consideration was twenty inches long, and seven inches and a half high. The upper part of the neck was more bushy than that of the former genet, whose hair was all of an equal length. The circular bars on the tail are less distinct, and, indeed, extend not farther than about one third part of the tail. The whiskers are black, and much longer, being two inches seven lines long, and lie upon the cheeks, instead of being erect, as in the cats and tigers. The nose is black, and the nostrils very much arched. Above the nose there is a black line, which extends to between the eyes, and is accompanied by two white bands. Above the eyes there is a white spot, and a white band below them. The ears are black, but longer and narrower at the base than those of the first genet. The hair of the body is of a whitish gray colour, mixed with large black hairs, which, being reflected, seem to form a kind of black undulations. The upper part of the back is striped and spotted with black; the rest of the body is marked in the same manner, but the black is fainter.

The



A. Bell sculpt.

GENET.

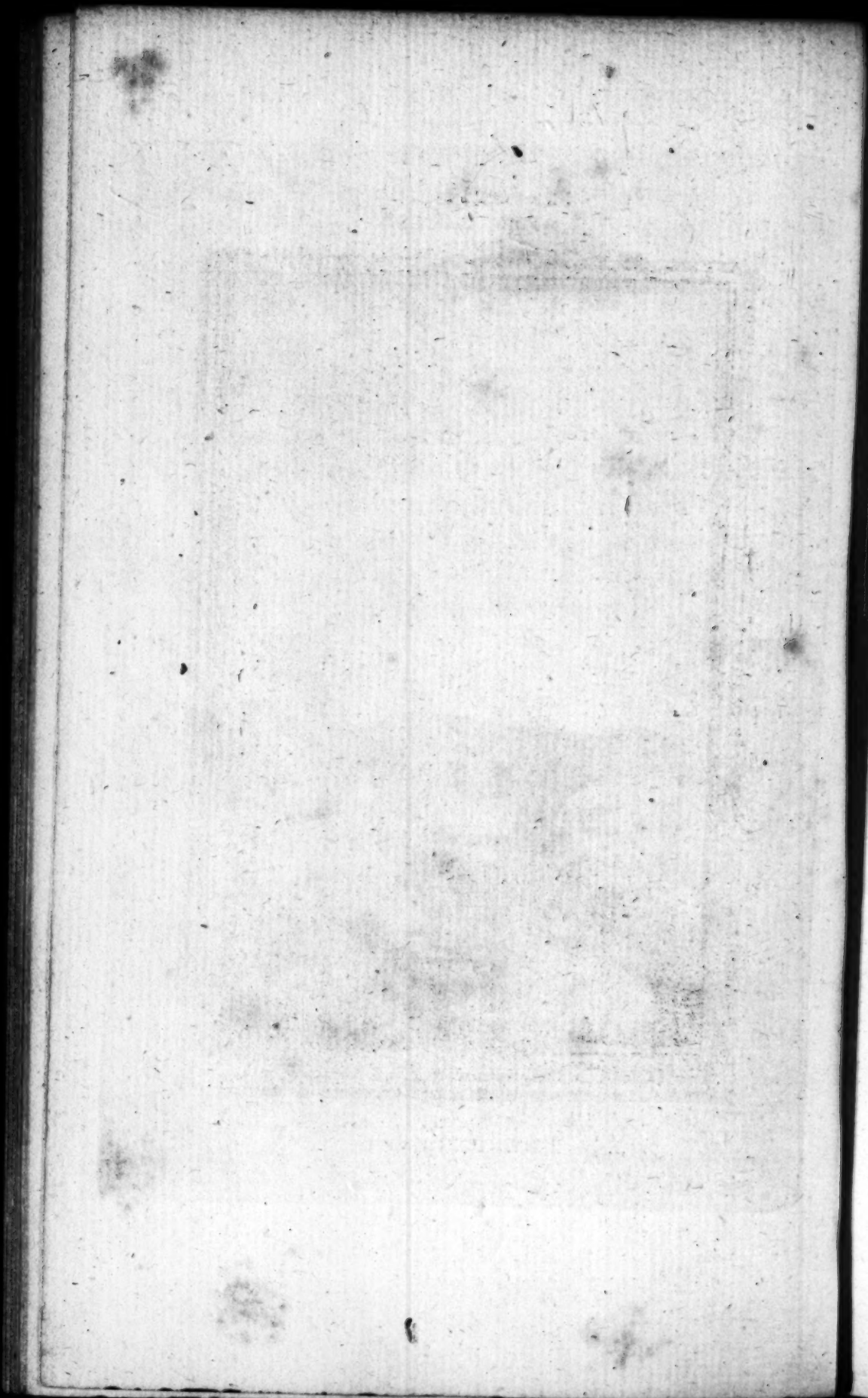


Plate CXXXII.



A. B. B. sculp.

FRENCH GENET.

The belly is white, and the legs and thighs black. The paws are short; and there are five toes on each foot. The claws are white and crooked. The tail is sixteen inches long, and about two inches thick at the origin; the upper third part of the tail is of the colour of the body, and marked with black rings, which are very ill defined. The other two thirds of it are black.

The CANADIAN MUSK RAT* and the MUSCOVY MUSK RAT †.

THOUGH these two animals have received the same denomination of *musk rats*, and have some common characters, they ought not to

* The musk beaver has a thick blunt nose, short ears almost hid in the fur, and large eyes. The toes on each foot are separated, the hind ones being fringed on the sides with strong hair, closely set together. The tail is compressed sidewise, very thin at the edges, and covered with small scales, intermixed with a few hairs. The head and body are of a reddish brown, and the breast and belly of an ash-colour, tinged with red. The fur is very fine. The length, from nose to tail, is one foot, and that of the tail nine inches. In the form of its body, it exactly resembles a beaver; *Pennant's Synops. of quad. p. 259.*

It is called *ondatra* by the North American savages; *Rat musqué de Canada.*

Musfascus; *Smith's Virginia, p. 27.*

Musquask; *Josselyn's voy. New England, p. 86.*

Musk rat; *Lawson, Carolina, p. 120.*

Castor zibethicus, cauda longa, compresso-lanceolata, pedibus fissis; *Lynn. Syst. Nat. p. 79.*

Castor cauda verticaliter plana, digitis omnibus a se invicem separatis; *Briffon. quad. p. 93.*

Rat musqué; *Charlevoix, Nov. France, p. 157. Lescorbet N. Fr. p. 350. Mem. de l'Acad. des Sciences, année 1726, p. 323.*

† The long nosed beaver has a long slender nose, like that of a shrew mouse, no external ears, very small eyes, and a tail compressed sidewise. The head and back are dusky, and the belly is of a whitish ash colour. The length, from nose to tail, is seven inches, and that of the tail is eight inches; *Pennant's Synops.*

to be confounded. They should likewise be distinguished from the pilori, or musk rat of the Antilles: They all form different species, and belong to different climates; the first being found in Canada, the second in Lapland and Muscovy, and the last in Martinico, and other of the Antilles islands.

The Canadian musk rat differs from the Muscovian, by having all its toes separate, conspicuous eyes, and a very short muzzle. But the musk rat of Muscovy has the toes of the hind feet webbed*, very small eyes, and a long muzzle, like that of the shrew mouse. Both have long compressed tails, and differ from the musk rat of the Antilles in this and several other characters†. The latter has a very short
R 3 tail,

In Sweden it is called *Desman*.

Mus aquaticus; *Clusii exotic. auct. p. 373. Aldrov. quad. digit. p. 448. Mus. Wormian. p. 334.*

Muscovy or musk rat; *Raii Synops. quad. p. 217. Nov. Com. Petrop. IV. p. 373.*

Castor cauda verticaliter plana, digitis omnibus membranis inter se connexis. . . . Mus Moschiferus; *Briffon, Regn. anim. p. 135.*

Castor moschatus, cauda longa compresso-lanceolata, pedibus palmatis; *Linn. Syst. Nat. p. 79.*

* *Oculi exigui et vix conspicui. . . . Digiti majores membranis connexi ad commodius natandum, rostri pars superior firma, prominula, et paene unciam longa, nigricans, eaque formâ praedita, ut instar suis aut talpae terram vertere possit*; *Clusii exotic. auct. p. 375.*

† The musk rats of the Antilles, called by the French *piloris*, generally burrow underground, like the rabbits, and are nearly of the same size; but they have no resemblance to

tail, which is cylindrical *, like that of the common rat. But both of the former have very long tails. The head of the Canadian musk rat resembles that of the water rat, and the head of the Muscovy kind resembles that of the shrew mouse.

In the memoirs of the Academy of Sciences, ann. 1725, there is a very complete description of the Canadian musk rat. M. Sarrafin, King's physician at Quebec, and correspondent of the academy, has dissected a number of these animals, and made some singular remarks. By comparing his description with ours, we are persuaded that the musk rat of Canada is the same animal whose figure is here represented.

The Canadian musk rat is of the size of a small rabbit, and of the figure of a rat. Its head is short, and resembles that of the water rat.

Its
our large rats, except that they are white on the belly, and black or tawny on the rest of the body. They smell so strong of musk, that their retreats are easily discovered by the perfume; *Hist. Nat. des Antilles*, p. 124.

* The piloris are a species of wood rats, three or four times larger than the common kind. They are almost white; they have a very short tail; and smell strongly of musk; *Nouv. Voy. aux Isles de l'Amerique*, tom. 1. p. 438. The piloris are found in Martinico and some of the other Antilles. They are musk rats, of the same figure with the common rat, but so large, that four of our rats would not weigh a single pilori. . . . They nestle even in the huts; but are not so prolific as the common rat. . . . The piloris are natives of Martinico; but the common rat never appeared there till it was frequented by ships; *Hist. gen. des Antilles*, par le P. Tertre, tom. 2. p. 302.

Its hair is soft and glossy ; and beneath the first hair there is a thick down, nearly resembling that of the beaver. Like other rats, its tail is long, and covered with scales ; but its form is different ; for, instead of being cylindrical, it is compressed laterally from the middle to the extremity, and roundish near the origin. The toes are not united by membranes, but garnished with long close hair, which assists the animal in swimming. Its ears are very short, and not naked, as in the common rat, but covered, both internally and externally, with hair. The eyes are large, their aperture being about three lines. In the under jaw there are two cutting teeth, about an inch long, and two shorter ones in the upper. These four teeth are very strong, and serve the animal for gnawing and cutting wood.

The singularities observed in this animal by M. Sarrafin are, 1. The great muscular force in its skin, which enables the creature to contract its body into a small volume: 2. The suppleness of the false ribs, which admits this contraction, and is so considerable, that the musk rat is enabled to pass through holes where much smaller animals cannot enter : 3. The manner in which the females discharge their urine ; for the urethra terminates not, as in other quadrupeds, under the clitoris, but at a hairy eminence above the os pubis ; and in this eminence there is an aperture that allows the urine to escape. This singular organization is peculiar to a few species

species of animals, as the rats and apes, the females of which have three apertures. It has been remarked, that the beaver is the only quadruped whose urine and excrement are discharged by a common aperture. The female rats and apes are, perhaps, the only animals who discharge their urine by an aperture separated from the organs of generation. But this singularity is confined to the females, the structure of the males being the same with that of other quadrupeds. 4. M. Sarrafin farther remarks, that the testicles, which, as in other rats, are situated on each side of the anus, become, in the rutting season, very large in proportion to the size of the animal, their bulk being often equal to that of a nutmeg; but that, after this season, they diminish so greatly as not to exceed a line in diameter; and that they not only undergo a change of size, consistence, and colour, but even their situation is remarkably varied. In the same manner, after the season of love, the seminal vessels, the vasa deferentia, and all the organs of generation, are almost entirely obliterated: The testicles, which, during this period, were external and very prominent, retire within the body. They are fixed, like the other parts just mentioned, to the membrana adiposa. This membrane, by the redundant nourishment, gradually expands and increases till the arrival of the rutting season, when the organs of generation, which seem to be appendages of the membrane, unfold,

unfold, swell, and acquire their complete dimensions. But, when the redundant nourishment is exhausted by reiterated embraces, the membrane turns meagre, contracts, and gradually retires toward the reins, carrying along with it the vasa deferentia, the seminal vessels, and the testicles, which last become so light, empty, and shrivelled, as hardly to be distinguishable. In the same manner, the seminal vessels, which, at the commencement of the rutting season, are an inch and a half long, are afterwards reduced to a line or two in diameter: 5. That the follicles which contain the perfume of this animal in the form of a milky humour, and which are situated near the organs of generation, undergo the same changes. In the rutting season, they are large and turgid, and their perfume is so strong and highly exalted, that it is perceptible at a great distance. They afterwards contract, shrivel, and at last entirely disappear. This change in the follicles, which contain the perfume, is more rapid and complete than that which happens to the organs of generation. These follicles are common to both sexes, and, in the rutting season, contain a considerable quantity of milky humour, secreted by vessels, which in the male, terminate at the extremity of the penis, and towards the clitoris in the female. This secretion is performed, and the humour evacuated nearly at the same place as the urine in other quadrupeds.

All

All these peculiarities remarked by M. Sarrafin, were worthy the attention of so able an anatomist. In the history of the water rat, the mole, and short-tailed field mouse, we have mentioned similar changes in the organs of generation. Thus we find quadrupeds, though in their general structure they resemble the other animals of the same class whose organs of generation are annually obliterated and renewed, nearly in the same manner as the milts of fishes, and the seminal vessels of the calmar, whose changes, annihilation, and reproduction, have been formerly described *. These shades by which Nature connects beings apparently the farthest removed from each other, these singular examples, should never be neglected; because they belong to the general system of organization, and unite the most distant points of animated bodies. But this is not the place for expatiating on the general conclusions which might be drawn from these singular facts, nor on the close connection they have with our theory of generation. They will be anticipated by the intelligent reader; and we shall soon have occasion to exhibit them to greater advantage, by adding them to other facts of a similar nature.

As the Canadian musk rat belongs to the same country with the beaver, dwells on the water, and has nearly the same figure, colour, and fur, they have often been compared to each other.

It

* See above, vol. II. p. 186.

It is even asserted, that a full grown musk rat, at first sight, may be mistaken for a beaver of a month old. They differ greatly, however, in the form of the tail, which, in the beaver, is oval and flat horizontally; but, in the musk rat, it is very long and flat, or compressed, vertically. Besides, these animals have a great resemblance in their dispositions and instincts. The musk rats, like the beavers, live in society during the winter. They make little huts, about two feet and a half in diameter, and sometimes larger, where several families associate together. It is not the object of this operation, like that of the marmots, to sleep during five or six months, but solely to shelter them from the rigour of the air. These houses, or huts, are round, and covered with a dome about a foot thick. Their materials are herbs and rushes enterlaced, and cemented with earth, which they plash with their feet. They are impenetrable to rain, and furnished with steps in the inside, to prevent their being injured by inundations from the land. These huts, which serve the animals for a retreat, are covered, during winter, with several feet of snow and ice, without incommoding them. They lay not up provisions, like the beaver, but dig a kind of pits or passages under and round their habitations, to give them an opportunity of procuring water and roots. Though thus associated, they pass the winter in melancholy; for it is not the season of their amours. During all this period,

riod, they are deprived of light ; and, when the gentle breezes of the spring begin to dissolve the snow, and to discover the tops of their habitations, the hunters open the dome, suddenly dazzle them with the light, and kill or seize all those who have not had time to retire to their subterraneous galleries, into which they are still followed ; for their skin is valuable, and their flesh makes tolerable good eating. Those who escape the vigilance of the hunter quit their habitations at this time. They wander about during summer, but always in pairs ; because it is the season of their amours. They feed upon herbs, and voraciously devour the fresh productions of the earth. By this redundance of excellent nourishment, the membrana adiposa expands, increases, and is filled with fat ; the follicles are also renewed and filled ; the organs of generation unfold and swell ; and then the animals acquire an odour of musk, so strong as to be hardly supportable. This odour is perceived at a distance ; and, though agreeable to Europeans *, is so disgusting

* The musk rat of North America is somewhat thicker and longer than our water rat. Water is its element ; but it sometimes goes upon land. It has a flat tail, from eight to ten inches long, an inch broad, and covered with small black scales. Its skin is reddish, and the fur very fine. Near the testicles there is a matter which has a most agreeable smell of musk, and does not incommode those to whom musk is offensive. In winter, when they are killed for the sake of their fur, they have no odour ; but it begins to be perceptible in spring, and continues strong till autumn. . . . The flesh, which has

gustful to the savages, that they have denominated a river, inhabited by a vast number of these rats, the *Stinking River*.

The females bring forth annually five or six young. Their time of gestation is not long; because they come in season in the beginning of summer, and the young are pretty large in the month of October, when they retire with their parents into the huts, which are built every year; for it has been remarked, that they never return to their old habitations. Their cry is a kind of groaning, which the hunter counterfeits, in order to make them approach him. Their fore-teeth are so strong, and so proper for cutting, that, when shut up in a box of hard wood, they soon make a hole sufficient for their escape, which is a faculty they have in common with the beaver. They swim neither so swift nor so long as the beaver; but often go upon the ground. They do not run well, and they walk still worse, rocking from side to side, like a goose. Their skin preserves the smell of musk, which renders their fur not so generally agreeable; but the down, or under hair, is used in the manufacturing of hats.

These

has no flavour of musk, makes excellent food; *Descript. de l'Amer. Septent. par Denys, tom. 2. p. 258.*—The musk rats of Canada diffuse a fine odour, which is stronger than that of the civet or gazelle; *Voyage de Hontan, tom. 1. p. 95.*—The American savages have such an aversion to the odour of the musk rat, that they give the animal the epithet of *stinking*; *Mém. de l'Acad. des Sciences, année 1725, p. 327.*

These animals are not remarkably wild, and, when taken young, are easily tamed. They are then very pretty; and their tail, which is long and flat, and makes their figure disagreeable, is, at this period of life, very short. They sport with as much innocence and gentleness as young cats. They never bite*, and might be easily reared, if their odour were not disagreeable.

The Canadian and Muscovy musk rats are the only northern animals which yield a perfume; for the odour of the *castoreum* is extremely offensive; and it is only in warm climates that the animals which furnish the true musk, the civet, and other perfumes, are to be found.

The musk rat of Muscovy would, perhaps, exhibit to us peculiarities similar to those of the Canadian; but it seems not to have been dissected, or examined alive by any naturalist. We can only mention its external form, that preserved in the King's cabinet having been sent from Lapland in a dry state. We must, therefore, regret that so little is known of this animal.

THE

* The musk rats of Canada, called *ondathra* by the Hurons, eat herbs, and the pith of rushes about the lakes and rivers. When young, it is pleasant to see them eat and perform their little gambols. I had a very pretty one, which I fed with the pith of rushes, and an herb similar to the dandelion. They are not apt to bite; for I handled mine at pleasure, without the smallest danger of injury; *Voyage de Sagard Theodat. p. 322.*—The plant, which M. Sarrafin says the musk rat prefers to all others, is the *calamus aromaticus*.

Plate CXXXIII.



Atwell sculp.

CANADIAN MUSK RAT.



A. Bellin sculp.

MUSCOVY MUSKRAT.

THE MEXICAN HOG*.

OF all the animals in the New World, the Mexican Hog is the most numerous and most remarkable species. At first sight, he resembles our wild boar, or rather the hog of Siam, which,

* The Mexican Hog has four cutting teeth above, six below, and two tusks in each jaw; those in the upper jaw pointing down, and little apparent when the mouth is shut; the others hid. The length from the nose to the anus, is about three feet. The head is not so taper as in common swine. The ears are short and erect. The body is covered with bristles, stronger than those of the European kind, and more like those of a hedgehog; they are dusky, surrounded with rings of white; those on the top of the neck and back are five inches long; they grow shorter on the sides. The belly is almost naked. From the shoulders to the breast, there is a white band. It has no tail. On the lower part of the back there is a gland, open at the top, which discharges a fetid, ichorous liquor, which has been mistakenly called a *navel*; Pennant's *Synops. of quad.* p. 72.

It is called *Le Pecari*, or *le sanglier pecari*, by the French.

The wild boar called *Pecari*; *Desmarchais*, tom. 3. p. 312. *Waser's voyage*, *Dampier*, tom. 3. p. 328. tom. 4. p. 48.

NOTA. Few animals have received such a variety of names. The savages of Brasil call it *Tajassou*, according to Lery. Piso and Marcgrave call it *Tajacu* and *Caaigoara*; Coreal *Tajoussou*, (*Voy. aux Indes Orient.* tom. 1. p. 173.); The Mexicans, *Quauh-tla coyamatl*, *Quapizotl*, or *coyamatl*. Travellers have also mentioned it under different appellations. At the bay of All Saints, according to Dampier, it is called *Pelas*; *Javari* or *Paquire* at Tabago, according to Rochefort, (*Relat. de l'Isle de Tabago*, p. 31.); *Paquirá*, in the country of the Amazons, (*Jumilla*, tom. 2. p. 6.); *Saino* or *Zaino*, in several places of America, (Joseph

which, as formerly remarked, is only a variety of the wild boar. In the same manner, the Mexican hog has been called the *boar*, or *hog of America*. He constitutes, however, a different species; for, from repeated trials, it has been found, that he does not intermix either with our wild or domestic kinds. He likewise differs from the hog in several essential characters, both external and internal. He is not so corpulent, and his legs are shorter. The form of his stomach and intestines is also different. He has no tail. His bristles are much coarser than those of the wild boar. Lastly, on his back, near the crupper, there is an orifice about three lines broad, and more than an inch deep, from which an ichorous humour, of a very disagreeable smell, flows very copiously. No other animal has an aperture in this region of the body. The civets, the badger, and

(Joseph Acosta, p. 196.); *chuchie*, according to Oviedo, (See Hernand. hist. Mex. p. 649.); *Coscui* (Voyage de Coreal, tom. i. p. 84.)

Aper Mexicanus; *Faber*, apud *Hernand. hist. Mex.* p. 637.

Sus umbilicum in dorso habens; *Aldrov. de quad. biful.* p. 939.

Tajacu; *Pison. hist. Brasil.* p. 98. et *Maregrav. hist. nat. Brasil.* p. 229.

Tajacu, seu *aper Mexicanus Moschiferus*; *Raii synops. quad.* p. 97.

Sus minor umbilico in dorso; *Cochon noir*; *Barrere Hist. Franc. equin.* p. 161.

Sus tajacu, dorso cystifero, cauda nulla; *Lynn. syst. nat.* p. 103.

Sus ecaudatus, folliculum ichorosum in dorso gerens; *Briss. son Regn. animal.* p. 111.

Mexican musk hog; *Phil. Transf. Abr.* ii. 876.

and the genet have the reservoir of their perfume under the organs of generation ; and the Canadian musk rat, and the musk animal, have it under the belly. The liquor which issues from the dorsal aperture of the Mexican hog is secreted by a number of large glands, which are well described by M. Daubenton, and by Dr Tyson *. It is unnecessary to give in detail the observations of these acute anatomists. It shall only be remarked, that Dr Tyson is wrong in asserting that this animal has three stomachs, or, as Mr Ray † expresses it, a gizzard and two stomachs. M. Daubenton has clearly demonstrated, that it has but one stomach divided by two strangulations, which give it the appearance of three ; that only one of these three bags has a pylorus, or aperture for allowing the descent of the aliment into the other intestines ; and, consequently, that the other two should be regarded as appendages, or rather portions, of the same stomach.

The Mexican hog might be rendered domestic, as well as the common kind. He is nearly of the same dispositions, feeds upon the same nourishment, and his flesh, though drier and less loaded with fat, is by no means disagreeable. It is likewise improved by castration ; but, when his flesh is intended to be eaten, not only the organs of generation, as is practised on the wild

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boar,

* Phil. Transf. No 153.

† Raii Synopf. quad. p. 99.

boar, but the whole dorsal glands of both male and female should be cut off instantly after death; for the retention of them for a single half hour gives the meat an odour so strong as to render it uneatable.

These animals are very numerous in all the warm climates of South America. They go in herds, which sometimes amount to two or three hundred. For defending themselves, and repelling those who want to deprive them of their young, they are endowed with the same instincts as the common hog. They mutually assist each other; they surround their enemies, and often wound the dogs and the hunters. In their native country, they prefer the mountains to the plains. They search not for marshes and mires, like our wild boar, but remain in the forests, where they live upon fruits, seeds, and roots. They likewise eat serpents, toads, and lizards, whose skins they previously tear off with their feet. They produce a great number at a time, and, perhaps, more than once a-year. The young soon follow their mother, and never separate from her till they are full grown. When taken young, they are easily tamed; they lose their natural ferocity, but retain their stupidity; for they know no person, and have no attachment to those who take care of them. They do no mischief, and may be allowed to go and come at pleasure, without any inconvenience. They never stray, but return home spontaneously;
and

and they never quarrel, but when a number of them are presented with victuals in the same trough. When angry, their grunting is stronger and harder than that of the common hog; but they seldom cry. Like the wild boar, when suddenly alarmed, they make a sharp blowing kind of noise. Their breath is very strong; and, when irritated, their hair rises, which is so coarse, that it rather resembles the prickles of a hedgehog than the bristles of the wild boar.

The species of the Mexican hog is preserved without any change; for they never intermix with those hogs which were transported from Europe, and have become wild in America. These animals often meet in the woods, and even go in company, without producing any new variety. The same observation applies to the Guiney hog, which has multiplied greatly in America, after being brought thither from Africa. The European hog, the Guiney hog, and the Mexican hog, are three species, which, though they seem to approach very near each other, are perfectly distinct, since they all subsist in the same climate, without change or intermixture. Our wild boar is the strongest and most formidable of the three. The Mexican hog is equally ferocious; but he is weaker, more unwieldy, and worse armed, his tusks being much shorter than those of the wild boar. The former is impatient of cold, and cannot subsist, even in our temperate climates, without being sheltered, and

the wild boar cannot subsist in very cold countries. Hence neither of these animals could pass from the one Continent to the other by the lands lying toward the north pole; and, therefore, the Mexican hog cannot be regarded as the European hog altered or degenerated by the influence of the American climates, but as an animal peculiar to the southern regions of the New World.

Ray, and other authors, maintain, that the liquor secreted by the dorsal glands of the Mexican hog, is a kind of musk, an agreeable perfume, even when it issues from the body of the animal; that it is perceived at a great distance; and that it perfumes the places where he inhabits, or through which he passes. But, on the contrary, I have a thousand times experienced, that the odour of this liquor, when it escapes from the animal, is so nauseous, that we could neither smell nor collect it without extreme disgust. It seems only to become less fetid by drying in the air; but it never assumes the agreeable odour of musk or of civet; and naturalists would have made a nearer approach to truth, if they had compared it to that of *castoreum*.

S U P P L E M E N T.

M. de la Borde remarks, that, in Cayenne, there are two distinct species of the pecari or Mexican

Plate CXXXV.



MEXICAN HOG.

Plate CXXXVI.



Chubb Sculpt.

MEXICAN HOG.

Mexican hog, which never intermix. The largest kind, says he, has white hair on its chops; and, on each side of the jaw, there is a round white spot, of the size of a small crown-piece. The rest of the body is black; and the animal weighs about one hundred pounds. The smaller species has reddish hair, and weighs not above sixty pounds.

It is the large species which is here represented. And, with regard to the smaller kind, the difference of colour and size, mentioned by M. de la Borde, must be only a variety produced by age, or some other accidental circumstance.

M. de la Borde, however, says, that the large kind runs not, like the small, after dogs and men. He adds, that both species inhabit the large woods, and that they go in flocks of two or three hundred. They feed on the mountains during the rainy season; and, when it is past, they frequent the low and marshy grounds. They feed upon fruits, seeds, and roots, and likewise dig in the mires, in quest of worms and other insects. They are hunted without dogs, by following the track of their feet. They are easily shot; for, instead of flying, they assemble together, and often give the hunters an opportunity of charging and discharging several times. They pursue the dogs, and sometimes men. He relates, that, being one day employed, along with several others, in hunting these animals, accompanied by a single dog, which, as soon as

S 3

they

they appeared, took refuge between his master's legs. For the greater safety, he, with the other hunters, stood on a rock. They were, nevertheless, surrounded by the flock of hogs. A constant fire was kept up; but the creatures did not retire till a great number of them was slain. These animals, however, he remarks, fly after they have been several times hunted. The young, when taken in the chase, are easily tamed; but they will not associate or mix with the domestic species. In their natural state of liberty, they frequent the marshes, and often swim across large rivers. They make great havoc in the plantations. Their flesh, says he, has an excellent taste, but is not so tender as that of the domestic hog; it resembles the flesh of the hare, and has neither lard nor grease. The females bring forth only two at a litter; but they produce in all seasons. When killed, the dorsal gland should be instantly cut out, otherwise it will give a bad flavour to the meat.

M. de la Borde mentions another species of hog, which he calls *patira*, and is also found in Guiana. I shall transcribe what he remarks of this animal, solely with the view that he, or some other observer, may furnish us with more precise information, and a more complete description of it.

‘ The *patira* is of the size of the smaller species of Mexican hog; and differs from it only
‘ by

' by having a white line along the spine from
' the neck to the tail.

' These animals live in the large forests, from
' which they never depart. They associate not
' in large flocks, but in families. They are,
' however, very common, and never leave their
' native country. They are hunted with or
' without dogs. When pursued by dogs, they
' stand firm, and defend themselves with cou-
' rage. They take refuge in hollow trees, or in
' holes of the earth dug by the armadillos. These
' holes they enter backwards, and remain as long
' as they can: But, when highly irritated, they
' instantly issue out in a body. In order to seize
' them as they come out, the hole is inclosed
' with branches of trees; one of the hunters,
' armed with a pitchfork, stands above the hole,
' to fix them by the neck, while another forces
' them out, and kills them with a sabre.

' When there is but one in a hole, and the
' hunter has not leisure to seize it, he shuts up
' the entrance, and is sure of his game next day.
' The flesh of the patira is superior to that of o-
' ther hogs. When taken young, they are ea-
' sily tamed; but they have a mortal antipathy
' to dogs, whom they perpetually attack. The
' females bring forth only two at a time; and
' they are fit for procreating in every season of
' the year. They keep always in the marshes,
' unless when totally covered with water.

' The

‘The hair of the patira is not so hard as that
‘of the wild boar, or domestic hog, but is soft
‘and flexible like that of the pecari. The pa-
‘tira, when tamed, follows his master, and al-
‘lows himself to be handled by those with whom
‘he is acquainted; but strangers he threatens
‘with his head and teeth.’

The

The TERNAT BAT*, the lesser
TERNAT BAT**, and the VAM-
PIRE, or SPECTRE***.

THOUGH the two Ternat bats appear to be distinct species, we have placed them together, because of their great resemblance; for they differ only in magnitude and colour. The larger,

* The bats, or winged quadrupeds, are distinguished from all other animals, by having long toes on the fore-feet, connected by thin broad membranes, extending to the hind-legs.

The great or Ternat bat has large canine teeth, four cutting teeth above, and an equal number below, a sharp black nose, and large naked ears. The tongue is pointed, and terminated by sharp aculeated papillae. The exterior toe is detached from the membrane, and the claw is strong and hooked. There are five toes on the hind-feet; the talons are very crooked, strong, and compressed sidewise. It has no tail; the membrane is divided behind quite to the rump. The head is of a dark ferruginous colour: On the neck, shoulders, and under side, the red is much lighter and brighter. On the back, the hair is shorter, dusky and smooth. The membranes of the wings are dusky. They vary in colour; some are entirely of a reddish brown, others dusky. This now described was one foot long, and the extent of the wings, from tip to tip, was four feet. But they are found vastly larger; *Pennant's Synops. of quad. p. 359.*

La Roussette, vulgairement le Chien-Volant.

Vespertilio ingens; Clusii Exot. p. 94.

Vespertilio; Gessn. Hist. avium, p. 772.

Canis volans Ternatanus orientalis; Seba, vol. 1. p. 91. tab. 57. fig. 1. 2.

Vespertilio vampyrus, naso simolici, membrana inter femora divisa; Linn. Syst. Nat. p. 46.

Vespertilio

ger, whose hair is of a reddish brown colour, is nine inches long from the end of the muzzle to the

Vespertilio cynocephalus Ternatanus; *Klein. quad. p. 61.*

Pteropus rufus aut niger, auriculis brevibus acutiusculis; *Briffon. quad. p. 153. 154. No. 2.*

The great bat from Madagascar; *Edw. Hist. of Birds, part 4. p. 180.*

** *La Rougette*; *Le chien-volant a col rouge.*

Pteropus fuscus, auriculis brevibus acutiusculis, collo superiore rubro. *La Rouffette a col rouge*; *Briffon. Regn. anim. p. 154.*

Note. M. Briffon has separated with propriety the Ternat bats from the common bat. Linnaeus is wrong, when he says, that all bats have four cutting teeth in each jaw. This character is true in the Ternat bats; but the common bats have four cutting teeth in the upper jaw, and *six* in the under; and, consequently, according to Linnaeus's method of classing by the number and arrangement of the teeth, these animals cannot belong to the same genus.

*** The vampire or spectre has a long nose, large teeth, and long, broad, upright ears. At the end of the nose there is a long conic erect membrane, bending at the end, and flexible. The hair on the body is cinereous, and pretty long. The wings are full of ramified fibres. The membrane extends from hind leg to hind leg. It has no tail; but from the rump extend three tendons, terminating at the edge of the membrane. By Seba's figure, the extent of the wings is two feet two inches, and from the end of the nose to the rump, seven inches and a half; *Pennant's Synops. of quad. p. 363.*

The spectre is an American animal, mentioned under the vague names of the *great American bat*, or *the flying dog of New Spain.*

Canis volans maximus, auritus, ex Nova Hispania; *Seba, vol. 1. p. 92. tab. 58. fig. 1.*

Vespertilio cynocephalus maximus, auritus, ex Nova Hispania; *Klein. quad. p. 62.*

Vespertilio spectrum, ecaudatus, naso infundibuliformi lanceolato; *Linn. Syst. Nat. p. 46.*

Pteropus

the extremity of the body; and the wings, when extended, are three feet from tip to tip; and the lesser, whose hair is of a cinereous brown colour, exceeds not five and a half inches in length, and the wings extend not above two feet; and it has on the neck a half-collar of a lively red, mixed with orange, of which there is no vestige in the larger kind. Both belong nearly to the same warm climates of the Old World, being found in Madagascar*, Mauritius, Ternat, the Philippines, and other islands of the Indian Archipelago, where they seem to be more common than on the adjacent Continents.

In the warm countries of the New World, there is another flying quadruped, the American name of which we have not learned. We shall call it *Vampire*, because it sucks the blood of men and other animals when asleep, without occasioning pain sufficient to waken them. This American animal is of a different species from the two Ternat bats, both of which are peculiar to Africa and the South of Asia. The vampire is smaller than either of the Ternat bats. The first, when it flies, appears to be of the size of a pigeon; the lesser Ternat bat is of the size of

Pteropus auriculis longis, patulis, naso membrana antrorsum inflexa aucto; Brisson. Regn. anim. p. 154.

Andira guacu, vespertilio cornutus; Piso, Brasil. p. 190. Marcgrave, Brasil. p. 213.

* In the Island of Madagascar, &c. the bats are as large as hens, and so numerous that they frequently darken the air. Their cry is frightful; *Voyage de Madagascar, par de V. p. 83. 245.*

of a crow, and the largest is as big as a large hen. Both Ternat bats have well formed heads, short ears, and rounded muzzles, nearly resembling that of a dog. The muzzle of the vampire, on the contrary, is longer; its aspect is equally hideous as that of the most ugly bats; its head is ill shaped; and its ears are large, open, and very erect. It has a deformed nose, the nostrils being of the shape of a funnel, with a membrane above them, which is elevated like a horn or painted crest, and adds greatly to the deformity of its countenance. Hence it is apparent, that this species is totally different from the Ternat bats. The vampire is not more remarkable for its deformity than its mischief. Of this we have the recent and authentic testimony of M. de la Condamine: 'The bats,' says he, 'which suck the blood of horses, mules, and even of men, if they do not sleep under the shelter of a house or tent, are a common scourge to most of the warm countries of America. Some of them are of a monstrous size. At Borja, and several other places, they have entirely destroyed the cattle which had been introduced there by the missionaries, and begun to multiply*.' These facts are confirmed by several other historians and travellers. P. Martyr †, who wrote soon after the conquest of South

* Voyage de la riviere des Amazones, par M. de la Condamine, p. 171.

† In Dariene, novi orbis regione, Hispani noctu vespertilionum moribus

South America, says, that, in the Isthmus of Darien, there are bats which suck the blood of men and cattle, when asleep, to such a degree as to weaken and even kill them. This fact is likewise affirmed by Jumilla *, as well as Don George Juan, and Don Antoine de Ulloa †. Though it appears, from these authorities, that the blood-sucking bats are very common in all South America, we have never hitherto been able to procure a single individual. But Seba has given a figure and description of this animal, whose nose is so extraordinary, that it is surprising such a conspicuous deformity should not have been taken notice of by travellers. The strange

moribus torquebantur, quae si dormientem forte momorderint quempiam, exhausto sanguine trahunt in vitae discrimen, et mortuos fuisse nonnullos ex ea tate compertum est; Petrus Martyr, Oceani decadis tertiae lib. 6.

* In South America, the bats are incredibly troublesome. There are two kinds, one of the size of those we see in Spain; the other so large, that the wings extend three quarters of a yard. Both are dexterous blood suckers, and fly about during the night in quest of men and cattle. If those who are obliged to sleep on the ground do not cover themselves from head to foot, which is very inconvenient in these warm regions, they are certain of being pierced by the bats. With regard to those who sleep in houses, with their front only uncovered, they are infallibly bit; and, if these animals strike a vein, the unfortunate person often passes insensibly from sleep to death by the loss of blood, so subtle is the wound inflicted: Besides, by fanning the air with their wings, they refresh the sleeper whom they mean to deprive of life; *Hist. Nat. de l'Orenoque, par le Père Jumilla, tom. 3. p. 100.*

† Bats are very numerous at Carthagen; they bleed the inhabitants so dexterously, and without wakening them, as to enfeeble them extremely; *Biblioth. raisonnée, tom. 44. p. 409.*

strange animal described by Seba, may not be the vampire or blood-sucker. Seba's figure may be erroneous; and the deformed nose may be only an accidental monstrosity, though there are examples of similar and permanent deformities in other species of bats. Time alone can remove these uncertainties.

Both the Ternat bats are in the Royal cabinet, and were brought from the isle of Bourbon. They are peculiar to the Old Continent, and are no where so numerous in Africa and Asia, as the vampire is in America. These animals are larger, stronger, and perhaps more mischievous than the vampire. But their destruction is executed by open force, both during the day and the night. They kill poultry and small birds: They attack men, and often wound them in the face. But no traveller mentions their sucking the blood of men or cattle, when asleep.

The ancients had an imperfect knowledge of these winged quadrupeds, which are a kind of monsters; and it is probable, that, from such whimsical models of nature, they had conceived the idea of harpies. The wings, the teeth, the claws, the cruelty, the voracity, the filthiness, and every other deformity and destructive quality ascribed to the harpies, correspond very well with our Ternat bats. Herodotus* ap-
pears

* Herodot. lib. 3. It is singular, that Pliny, who has related so many marvellous stories, should here accuse Herodotus

pears to point them out, when he says, that there were large bats which were extremely troublesome to the people who gather cassia around the marshes of Asia; and that they were obliged to cover their bodies and faces with leather, to defend themselves against the dangerous bites of these animals. Strabo * speaks of large bats in Mesopotamia, whose flesh made good eating. Among the moderns, Albertus, Isidorus, and Scaliger, mention these large bats in a vague manner. Linscot, Nicolas Matthias †, and Francis Pyrard ‡ have made more particular mention of them; and Oliger Jacobeus || has given

notion of falsehood, and treat the fact of bats attacking men, as a mere fable of antiquity.

* In Mesopotamia, inter Euphratis conversiones, est maxima verspertilionum multitudo, qui longe majores sunt quam in caeteris locis. Capiuntur, et in esum condiuntur; *Strabo, lib. 16.*

† Nicólus Matthias, in a work printed at Visurghbourg, in Sweden, says, p. 123. that these large bats fly in flocks during the night; that they drink the juice of the palm-trees in such quantities as render them intoxicated, and make them fall, as if they were dead, at the roots of the trees; that he seized one in this condition, and having nailed it to a wall, it gnawed and rounded the nails with its teeth, as if they had been filed. He adds, that its muzzle resembles that of a fox.

‡ In the island of St Lawrence and in the Maldiva islands, there are bats as large as crows; *Voyage de Pyrard, tom. 1. p. 38. 132.*—In Malabar, the bats fly at noon day; they are as large as cats, and people eat them without reluctance; *Biblioth. raisonnée, tom. 32. p. 194.*

|| There are two of these bats in the *Museum Regium Hafniae*, 1696, p. 12. tab. 5. fig. 3. He says, that each of them were

given a short description, and a figure of them. Lastly, descriptions and good figures of these animals, which correspond with our specimens, are to be found in Seba and Edwards.

The Ternat bats are carnivorous animals, and so voracious, that they eat every thing; for, when flesh or fish fail them, they feed upon vegetables, and fruits of all kinds*. They drink the juice of the palm-tree; and it is easy to intoxicate and seize them, by placing near their retreats vessels filled with palm-water, or some other fermented liquor. They attach and suspend themselves to the trees by their claws. They generally fly in flocks, and more frequently in the night than the day. They avoid places frequented by men, and dwell in the deserts, particularly in uninhabited islands. They copulate

were of the size of a large crow; that they were a foot long; and that the length of the penis was two inches. He adds, after Linscot, that they were eaten by the Indians, who thought them as delicate as partridges.

* In the Manilla islands, we find an infinity of large bats hanging attached to each other upon the trees. They take flight in the evening, and go in quest of food to the distant woods. They sometimes fly in such numbers, and so close, that they darken the air with their wings, which are often six palms in extent. They know how to distinguish, in the thickest woods, the trees which bear ripe fruit. These they devour, during the night, making a noise that may be heard at the distance of two miles, and return at day-break to their retreats. The Indians, who see these animals eating their best fruits, make war against them, not only to gratify revenge, but to feed upon their flesh, which they say tastes like that of a rabbit; *Hist. gen. des. voyages, par M. l'Abbé Prevost, tom. 10. p. 389.*

polate with ardour. The sex in the male is very conspicuous. The penis is not concealed in a sheath, like that of quadrupeds, but hangs out of the body, like that of the monkey *. The sex of the females is also very apparent. They have only two paps placed on the breast, and they produce few at a litter, but oftener than once a-year. The flesh of these animals, when young, is not bad to eat; the Indians compare the taste of it to that of a partridge or rabbit.

All travellers through America agree, that the large bats of the New Continent have the faculty of sucking the blood of sleeping men and cattle, without wakening them. The travellers into Asia or Africa, who mention the Ternat bats, take no notice of this singular fact. Their silence, however, amounts not to a complete proof, especially as these creatures have so many other resemblances to the American vampires. We, therefore, thought it worthy of examination, whether the Ternat bats, (for we have not been able to procure the tongue of a vampire), could possibly suck blood, without occasioning a pain sufficient to waken a sleeping person. If they cut the flesh with their teeth, which are as large as those of other quadrupeds of the same size, a man in the most profound

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* In hoc animali uterque sexus dignoscebatur: Nam eorum aliquot, qui mihi conspecti sunt, satis longum exertumque penem habebant, quales fere simiarum est; *Carol. Clusii Exotic.*

sleep, and particularly cattle, whose sleep is less profound, would be instantly roused by the pain. The same thing would happen, if the wound was made by their claws. Hence it must be with their tongue alone that they are enabled to make such small apertures in the skin as to permit the blood to be extracted from the veins, without occasioning a great degree of pain. Upon examination, M. Daubenton discovered that the tongue of the Ternat bats was pointed, and armed with very hard, minute, sharp papillae, which are bended backwards: These may be insinuated into the pores of the skin, and penetrate so far as to make a stream of blood flow by the constant suction of the tongue. But it is fruitless to reason upon a fact, all the circumstances of which are not understood, and some of them, perhaps, exaggerated or unskillfully related.

S U P P L E M E N T.

I find, from a note communicated by M. Commerson, that he had seen, in the isle of Bourbon, millions of these large or Ternat bats, which, in the evenings, fly in flocks like crows, and perch upon trees, particularly the *vaccoun*, to eat the fruit. He adds, that, when taken
young,

young, they make good food, the taste of the flesh resembling that of the hare, and being equally black.

The late M. de la Nux, since the publication of my work, sent me, from the same island, some excellent remarks upon what I had written concerning these animals. His letter, of which the following are extracts, is dated October 24. 1772.

'In your letter of the 8th March 1770, you
'declare that you are equally happy to be in-
'formed of truth, or to have your own errors
'corrected, and invite me to communicate my
'thoughts and remarks with the utmost free-
'dom. I accept of the invitation, and am only
'afraid lest I should tire you by prolixity. With
'regard to the great or Ternat bats, to combat
'errors which have been long received, requires
'a variety of evidence. These animals, it would
'appear, have only been examined with the
'eye of fear: They have been regarded as ugly
'and monstrous; and, therefore, without farther
'examination than a bare inspection of
'their figure, they have received a character,
'manners, and habits, which do not belong to
'them; as if mischievousness, ferocity, and dir-
'tiness, were inseparable from ugliness of ap-
'pect.'

M. de la Nux remarks, that, in my description, p. 283. both the size and number of the great Ternat bats are exaggerated; that there

is nothing frightful in their cry; that it resembles the hoarse noise made by a man when he opens his mouth, contracts the wind-pipe, and makes several forcible expirations and respirations; and that, when these animals are at rest on a tree, they make a gentle kind of murmuring, which is not disagreeable.

'P. 61. Pliny with reason,' continues our author, 'treats the narrative of Herodotus as fabulous. The Ternat bats, at least in the islands, instead of attacking men, uniformly avoid them. They bite cruelly, but only when defending themselves from blows, or when they are seized; so that, whoever is wounded by them, must ascribe his misfortune to his own want of address, and not to the ferocity of an animal that has no such quality.'

'P. 286. 287. Notes. Here the size of the great Ternat bat approaches nearer to the truth. . . . *In Malabar, the bats fly at noon-day.* This is true of the larger, but not of the lesser Ternat bats. The former fly not in troops during the day, but singly, when they mount very high, which greatly diminishes their apparent magnitude. They fly long without stopping, and I believe that they can pass from the isle of Bourbon to the isle of France, a distance of at least thirty leagues, in a very short time. They never hover, like birds of prey. But, in the great elevation of
'perhaps

perhaps two hundred fathoms above the surface of the earth, the motion of their wings, which is rapid when near the ground, appears to be very slow.

Strictly speaking, the great Ternat bats live not in society. When in quest of food, they unite into flocks or companies more or less numerous. These companies associate by accident upon the trees whose flowers or fruits are agreeable to their palates. They may be observed arriving successively, and laying hold of the trees by the claws of their hind feet, where they rest for a long time, if not disturbed. There are always some, however, which detach themselves from time to time, and join the company. But, when a bird of prey passes above the tree, when they hear the noise of thunder, or of a musket, or when they spy any person in their neighbourhood, they all take wing at once. It is on such occasions that they are seen, during the day, flying in companies, which, though numerous, never obscure the air, because they cannot fly close enough to produce this effect: The expression is at least hyperbolical. But to say, that *an infinity of large bats may be seen attached to each other upon the trees*, is not only false, but absurd. They are too peevish to hold each other, in this manner, by the hand; and, if we examine their figure, the impossibility of such a concatenation will be apparent. They rest

‘ on the branches above, below, or at each o-
 ‘ ther’s sides; but always remain separate.

‘ With regard to the lesser Ternat bats, they
 ‘ never fly in the day: They live in society, to
 ‘ the number sometimes of more than four hun-
 ‘ dred, in the hollow trunks of large corrupted
 ‘ trees, from which they depart not till the dusk
 ‘ of the evening, and return before day-break. It
 ‘ is firmly believed in this island, that, whatever
 ‘ numbers these societies consist of, there is never
 ‘ more than one male found among them: But I
 ‘ cannot attest this fact. I shall only remark, that
 ‘ these sedentary animals acquire a great degree
 ‘ of fatness, and that, when this colony was first
 ‘ established, many people, whose taste and sto-
 ‘ mach were not too nice, collected vast quan-
 ‘ tities of bat grease for food. I have seen the
 ‘ time when a *tree of bats*, as it is termed, was no
 ‘ inconsiderable treasure. It is easy to shut up
 ‘ the entrance of their retreats, to take them out
 ‘ alive one by one, or to suffocate them with
 ‘ smoke, and in either way to ascertain the num-
 ‘ ber of males and females of which the society
 ‘ is composed. I know nothing more of this
 ‘ species. I return to the notes. Another
 ‘ hyperbole: P. 288. *They know how to distinguish,*
 ‘ *in the thickest woods, the trees which bear ripe*
 ‘ *fruit. These they devour during the night,*
 ‘ *making a noise that may be heard at the distance*
 ‘ *of two miles.* In reading this passage, we
 ‘ are led to ascribe the noise to the act of masti-
 ‘ cation.

' cation. The noise that is heard at a great di-
 ' stance, both in the night and the day, is that
 ' which is natural to the animals when in a pas-
 ' sion, and when disputing about their food; for
 ' it must not be imagined that the large Ternat
 ' bats eat during the night only. They have a
 ' fine eye, as well as an acute scent. They see
 ' very well in the day; and it is not surprising
 ' that they should distinguish, in the woods, ripe
 ' fruit and grain as well as flowers. Besides,
 ' the bananas of every kind, of which they are
 ' very fond, the peaches and other fruits cultiva-
 ' ted by the Indians, are not in the thickest parts
 ' of the woods. *The flesh of these animals,*
 ' p. 289. *is not bad.* . . . True, if the reluctance
 ' excited by their figure could be overcome. When
 ' about five months old, they are fat, and as good
 ' of their kind as the Guiney hen, or young wild
 ' boar; but, when old, they are hard, though
 ' pretty fat during the fruit-season, which con-
 ' tinues all the summer and a part of autumn.
 ' The males, especially when aged, acquire a
 ' strong, disagreeable flavour. Neither is it
 ' correct to say, in general, that these animals
 ' *are eaten by the Indians.* It is well known,
 ' that the Indian neither eats nor kills any ani-
 ' mal. Perhaps they are eaten by the Moors and
 ' Malaysans. It is certain, that many Europe-
 ' ans eat them. Hence it is true, that bats are
 ' eaten in India, though not by the Indians. In
 ' this island, both species are eaten.

' After

‘ After this examination, I proceed to the history of these animals, which likewise requires to be rectified. My proofs shall be drawn solely from my own observation, and from what has been alledged by those writers whom our Historian of Nature has followed.

‘ Both the great and lesser Ternat bats are natives of the Isles of France, of Bourbon, and of Madagascar. I have resided in the isle of Bourbon upwards of fifty years. When I arrived in the month of September 1722, these animals were very common in districts already settled, where they are now become rare. The reasons are obvious: 1. The forests were then at no great distance from the settlements; and they cannot subsist but in forests. 2. The great Ternat bats are viviparous, and bring forth one young only each year. 3. For the sake of their flesh and their grease, they are hunted, during the whole summer, autumn, and part of winter, by the Whites with muskets, and by the Negroes with nets. Besides these causes of diminution in the species, they abandon the neighbourhood of our settlements, and retire into the interior parts of the island, where they are exposed to constant destruction by the chefnut-coloured Negroes.

‘ The season of their amours here is in the month of May, which is about the middle of our autumn, and the females bring forth a month after the vernal equinox. Hence the time

' time of their gestation is from four and a half
 ' to five months. Of the precise time the young
 ' take in acquiring their full growth, I have no
 ' knowledge: But I know that they appear to
 ' be perfect at the winter solstice, which is nearly
 ' eight months from their birth. Besides, no
 ' small bats are seen, except in April and May,
 ' when the old are easily distinguished from the
 ' young, by the more vivid colour of the latter.
 ' The old ones become gray, though I know not
 ' at what period; and it is then that their flesh
 ' is hard, and has so strong and disagreeable a fla-
 ' vour, that the fat alone, with which they are
 ' well provided from the end of spring to the be-
 ' ginning of winter, is eaten by the Negroes.

' It is certain, that these animals feed upon no
 ' kinds of flesh, but solely on bananas, peaches,
 ' and other fruits, which our forests produce a-
 ' bundantly in different seasons. They are like-
 ' wise very fond of the juices of certain umbel-
 ' lated flowers, particularly those of our stinking
 ' tree, the nectarium of which is very short.
 ' These flowers abound in January and February,
 ' which is the middle of our summer, and allure
 ' into the lower parts of the island vast numbers
 ' of bats; and, it is probable, for the purpose of
 ' sucking the nectaria of umbellated flowers of
 ' different species, that their tongue is furnished
 ' with so many sharp papillae. The skin of the
 ' mango fruit is resinous, and is never touched
 ' by the bats. When confined in a cage, they
 ' have

‘ have been made to eat bread, sugar-canes, &c.
‘ I know not, however, whether they were made
‘ to eat flesh either raw or roasted. But suppo-
‘ sing they had, it is not in a state of slavery that
‘ I am considering them; for bondage changes
‘ the manners, characters, and habits of all ani-
‘ mals. Man has nothing to apprehend from
‘ these bats, either personally, or for his poultry.
‘ It is impossible for them to seize even the smal-
‘ lest bird. They cannot, like a falcon, stoop
‘ down upon their prey. If they approach too
‘ near the ground, they fall down, and are inca-
‘ pable of resuming their flight till they climb
‘ upon any elevated object they first meet with,
‘ supposing it should be the body of a man *.
‘ When on the ground, they trail their bodies
‘ slowly along, and make their stay in that situ-
‘ ation as short as possible. As they are by no
‘ means adapted for running, how is it practi-
‘ cable for them to seize birds on the branches
‘ of trees? The slow and awkward manner in
‘ which they move towards the end of a branch,
‘ in order to catch the wind in their wings,
‘ shows that every attempt of this nature would
‘ be abortive. When about to fly, these animals
‘ cannot,

* I saw a young Ternat bat fly into my house in the dusk of the evening, and fall down at the feet of a Negress about eight years of age. It instantly began to climb up the child's body, who was luckily very near me. I quickly relieved her, lest the claws of its wings should have scratched her shoulders or face.

' cannot, like birds, dart at once into the air.
 ' To disengage their claws from the place to
 ' which they are attached, they are obliged to
 ' beat the air several times with their wings; and,
 ' however full their wings may be when they
 ' quit their station, their weight is apt to make
 ' them sink. In order to raise themselves, they
 ' traverse the concavity of a curve line. But the
 ' place from which they depart is not always
 ' commodious for the free play of their wings.
 ' They may be restrained by the vicinity of
 ' branches; and, when thus situated, they pro-
 ' ceed to the part of the branch from which they
 ' can take wing without any risk. It frequently
 ' happens, that, when a numerous flock rest upon
 ' trees of twenty or thirty feet high, and are sur-
 ' prised by a peal of thunder, or the firing of a
 ' gun, several of them fall to the ground before
 ' they receive a sufficient quantity of air to sup-
 ' port them. In this case, they instantly climb
 ' the first tree they meet with, in order to resume
 ' their flight as soon as possible. Let us suppose
 ' that a traveller, hunting animals of which he
 ' has no knowledge, whose figure and aspect
 ' strike him with terror, is suddenly surrounded
 ' with a number of large bats; that he is en-
 ' tangled by one or two of them climbing up his
 ' body; that, by roughly endeavouring to disen-
 ' gage himself, he irritates the animals, and is
 ' scratched, or even bit by them; would not a
 ' scene of this kind give rise to the notion, that
 ' these

‘ these bats were ferocious, rushing upon men,
‘ in order to wound or devour them, while the
‘ whole affair is only a fortuitous rencounter of
‘ animals of different species, who are equally a-
‘ fraid of each other? I say more: The forest is
‘ absolutely necessary to the existence of these
‘ bats, to which they are led by the instinct of
‘ self-preservation, and not by any savage or fe-
‘ rocious disposition. When to all these facts I
‘ add, that neither the great nor lesser Ternat
‘ bats ever fix upon carrion, and that naturally
‘ they do not eat upon the ground, but require
‘ to be in a hanging posture when they feed, I
‘ think I have said enough to eradicate the pre-
‘ judice which represents them as carnivorous,
‘ voracious, destructive, and cruel animals. When
‘ I farther add, that their flight is as heavy and
‘ noisy, especially when near the ground, as that
‘ of the vampire ought to be light and silent, I
‘ shall have, by this last character, removed the
‘ one species to a considerable distance from the
‘ other.

‘ Because the great Ternat bats are sometimes
‘ observed flying near the surface of the water,
‘ like the swallow, they have been represented as
‘ feeding upon fish. But this flesh is equally
‘ disagreeable to them as all other kinds; for, I
‘ repeat it, that they live entirely on vegetables.
‘ It is solely for the purpose of bathing that they
‘ frequent the waters; and, if they fly nearer the
‘ surface of the water than the earth, it is owing
‘ to

to the fewer interruptions presented by the former to the motion of their wings. To this circumstance the natural cleanliness of these animals must be ascribed. I have seen, and I have killed numbers, and never discovered the smallest degree of dirtiness upon any of them.

The great bat is by no means a beautiful animal. When seen nigh, its movements are all disagreeable. There is only one point of view, a single attitude, in which all its natural deformity disappears, and in which it may be observed with pleasure. When perched on a tree, it hangs with its head down, and its wings folded, and placed exactly on each side of the body. In this situation, the vibrating wings which constitute its deformity, as well as the hind paws, by the claws of which it is suspended, are concealed. We see only a roundish, plump, pendulous body, covered with deep brown hair extremely clean and smooth, terminated by a head whose physiognomy is vivacious, and by no means disagreeable. This is their only attitude of repose, in which they remain a long time during the day. They are seen to best advantage at an elevation above the earth from forty to sixty feet, and at the distance of about one hundred and fifty feet. Now, figure to yourself a large tree, whose branches are garnished with one hundred and fifty or two hundred of such objects, having no other motion but what is communicated

‘communicated to them by the branches, and
 ‘you will have an idea of a picture, which I
 ‘have regarded as curious, and contemplated
 ‘with pleasure. In the richest cabinets of na-
 ‘tural history, the great Ternat bat is always
 ‘shown with its wings fully extended, which
 ‘is its most ugly attitude. This position may
 ‘answer one purpose. But some of them ought
 ‘to be viewed at a side, or from above, in their
 ‘natural state of repose. The one represented
 ‘in your work is not just; for these animals
 ‘never rest on the ground with their four feet.

‘I shall finish my notes, by remarking, that
 ‘both species afford a wholesome nourishment;
 ‘for, though their flesh is often devoured to ex-
 ‘cess, it was never known to be hurtful. Neither
 ‘should this fact excite surprise, when it is consi-
 ‘dered that these animals feed entirely on ripe
 ‘fruits, the juices, flowers, and perhaps the exu-
 ‘dations of a number of trees. The last I was
 ‘induced to believe from a passage in Herodotus.
 ‘But I have not been able to ascertain the truth
 ‘of it by actual observation.’

THE SENEGAL BAT*.

The Count de Buffon’s description of this bat
 is precisely the same with that given in the
 note. The author adds, that this animal has
 twenty-

* This bat has a long head; the nose is a little pointed;
 the ears are short and pointed; the head and body are of a
 tawny brown mixed with ash colour; the body is paler; the

twenty-eight teeth, two incisive in the upper jaw, six in the under, and two canine and eight grinders in each jaw. The upper cutting teeth are thick, long, and sharp, and distant from one another about a line and a half, and the under ones are furnished with lobes *.

This bat was brought from Senegal by M. Adamson of the Royal Academy of Sciences.

THE BULL-DOG BAT†.

The muzzle of this bat is very thick, the lips long, and the nose well formed. The ears are broad and round, their edges touching each other under the front; they have a fold forward, which extends from the auditory canal to the edge of the concha, two lines distant from the place where the two ears touch each other, and there is a concavity on the internal face of the concha on each side of the fold. The crown and hind part of the head, the top and sides of the neck, the shoulders, the back, and the crupper,

two last joints of the tail extend beyond the membrane; its length, from nose to rump, is above four inches, and the extent of the wings twenty-one inches; the membrane of the wings and tail is black; *Pennant's synopsis of quad. p. 366.*

Chauve-souris étrangère; *Buffon.*

* The principal characters of this bat are described in the *Memoirs of the royal academy of sciences, ann. 1759*, under the name of the *Marmotte volante.*

† *Pennant's synopsis. p. 366.*

crupper, are of a brownish ash-colour. The middle of the belly is brown; the remainder of the belly, the chest, and the throat, are ash-coloured, without any mixture of brown. The membrane of the wings and tail is of a blackish brown colour. The fore-legs and toes are cinereous. From the membrane there issues a portion of the tail of seven lines long, which is composed of five false vertebrae. The length of the body, from the end of the muzzle to the anus, is two inches.

This animal has twenty-six teeth, two incisive, two canine, and eight grinders in the upper jaw, and, in the under jaw, two incisive, two canine, and ten grinders*.

There is another bat, which seems to be of the same species with the preceding, though it differs in some articles. It is smaller, being only one inch eight lines in length. The head is not so plump, and, of course, the muzzle is thinner, and the nose still better shaped. The whole upper part of the body is yellow, mixed with a tinge of cinereous. The under part is of a dirty white, inclining to a yellowish ash-colour. The membrane of the wings and tail is a mixture of brown and yellow.

THE

* This bat is taken notice of in the Memoirs of the royal academy of sciences, ann. 1759, under the name of the *Mulet volant*.

THE BEARDED BAT*.

This bat has a head of a very singular construction. The nose has hardly any cartilage, and the front is much sunk. The nostrils are not separated, as in most animals, by a partition, but each of them is placed on the side of a small gutter, which is open above from one end to the other. The internal edge of this gutter is very small; the external is larger, and terminates in a small button. The external edges of the two gutters unite above the upper lip, and form the extremity of a large furrow, which extends from the upper lip to the front, where there is a deep naked hole, the borders of which are covered with long hair. The ears are long and narrow. The hair of the head, except that of the top, throat, breast, and belly, is whitish, with a tincture of yellow. The hair on the top and hind part of the head, the neck, shoulders, back, and rump, is of a reddish brown. The length of the longest hairs is four lines and a half. The ears and the membrane of the wings and tail have different tinctures of blackish and reddish brown. The tail is inclosed in the membrane to the very extremity. The claws are yellowish. The length of the body is about an inch and a half, and the extent of the wings a little more than seven inches.

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THE

* Pennant's Synopf. of quad. p. 367.

THE STRIPED BAT*.

The nose of this bat is very small. The ears are short, broad, and pointing forward. The hair of the front, top of the head, neck, shoulders, back, and rump, is of a whitish yellow colour; and that of the under jaw, breast, and belly, is blueish, with a tincture of yellow. The colour of the membrane of the wings and tail is a mixture of yellow and brown.

The

* Pennant's Synopf. of quad. p. 368. This bat is a native of Ceylon, where it is called Kiriwoula; *Pallas, Miscel. p. 49.*

Plate CXXXVII.



TERNAT BAT.

Plate CXXXVIII.



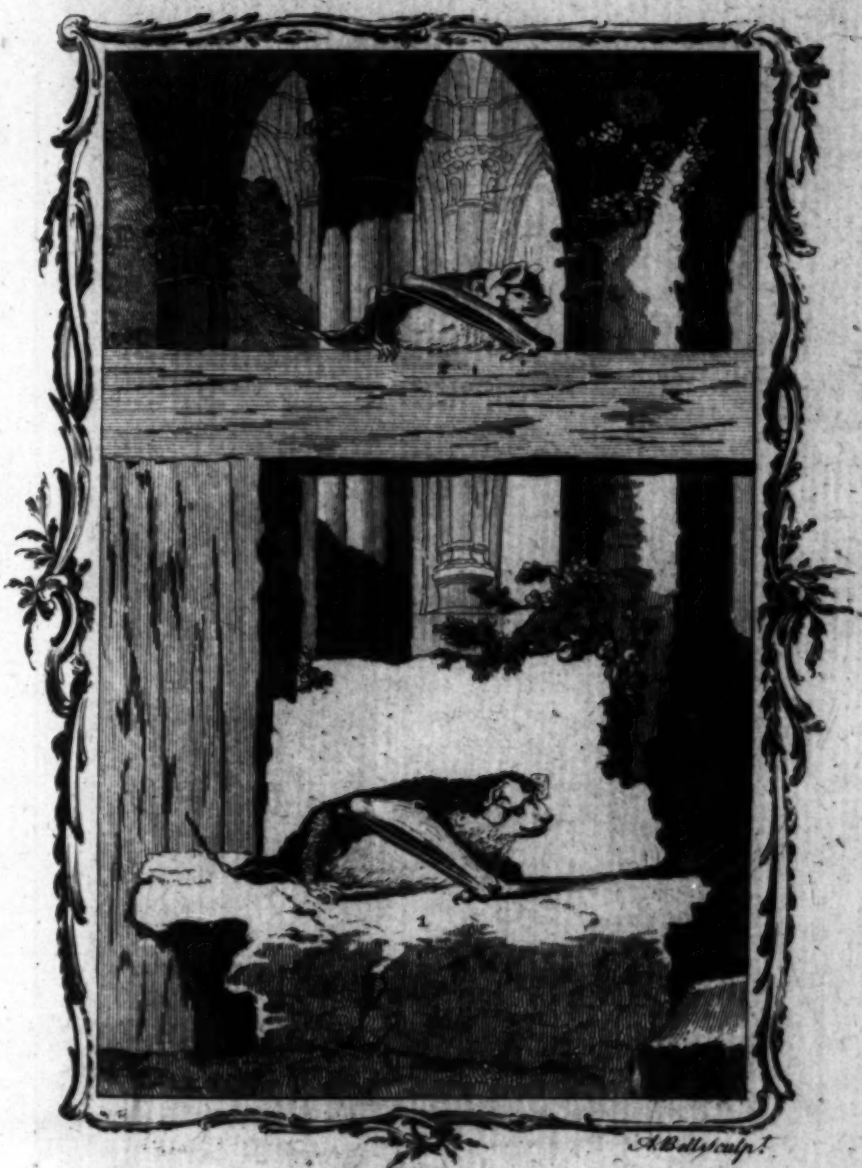
Lesser TERNAT BAT.

Plate CXXXIX.



SENEGAL BAT.

Plate CXL.



BULL DOG BAT.

Plate CXLI



A. Bell sculpt.

1 BEARDED BAT. & STRIPED BAT.

The FLYING SQUIRREL*.

THIS animal is related, by certain characters only, to the squirrel, the rat, and the *loir*, or fat squirrel. It resembles the squirrel in nothing but the largeness of its eyes, and the form of its tail, which, however, is neither so long, nor so bushy. It approaches the fat squirrel

U 2

rel

* Squirrel with round naked ears, full black eyes, and a lateral membrane from fore to hind legs. The hair of the tail is long, disposed horizontally, and longest in the middle. The colour above is a brownish ash, and beneath, it is white, tinged with yellow. It is much less than the common squirrel; *Pennant's Synops. of quad. p. 293.*

Buffon calls this animal *Le Polatouche*, from *Polatucha*, its Russian name. It is also called *Letaga* in Muscovy; *Wiewiorka*, *lataiaca*, in Poland; *Sabouesquanta* by the savages of Canada; and *Quimichpatlan* by other Indians of North America.

Mus Ponticus aut *Scythicus*, *sciurus*ve *alius*, quem volan-tem cognominant; *Gesner. Icon. quad. p. 111. 743.*

Sciurus Americanus volans, flying squirrel; *Raii Synops. quad. p. 215.*

Ecureuil-volant; *Catesby, Hist. nat. de la Caroline, tom. 2. p. 76.*

Sciurus volans; *Seba, vol. 1. p. 67. tab. 41. fig. 3.*

Sciurus volans, *hypochondriis prolaxis volitans*, *cauda rotundata*; *Linn. Syst. Nat. p. 88. Faun. Suec. No. 88.*

Scurius obscurus cinereus aut *rufescens*, cute ab anticis *cruribus* ad *postica*, *membranæ in modum extensa*, *volans*; *Briffon, quad. p. 110. iii. No. 12. 13.*

The flying-squirrel; *Edward's Hist. of Birds, part 4. p. 191. Phil. Trans. ann. 1733, p. 35. Lawson's Carolina, vol. 2. p. 76. Kalm, vol. 1. p. 321. tab. 1. Du Pratz, vol. 2. p. 69.*

Astapaniek; *Smith's Virginia, p. 27. Jesselyn's Voy. p. 86. De Laet, p. 88.*

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rel by the figure of its body, by the shortness and nakedness of its ears, and by the hairs on its tail, which are of the same figure and length. But it is not, like the fat squirrel, subject to be reduced to a torpid state by the action of cold. Hence the flying squirrel is neither a rat, a squirrel, nor a fat squirrel, though it participates of the nature of each of the three species.

Mr Klein gave the first exact description of this animal in the Philosophical Transactions, 1733. It was known, however, long before that time. It is found equally in all the northern regions of the Old and New Continents*. But it is more common in America than in Europe, where

* In the country of the Hurons, there are three kinds of squirrels. The flying squirrels, called *Sabouesquanta*, are most valued. They are ash-coloured; their head is thick; and a membrane, or expansion of the skin, extends from the fore to the hind feet, which they stretch out when about to fly. The females produce three or four at a litter, &c.; *Voy. du pays des Hurons, par Sagard Theodat, p. 306.*—There is another small animal, called *Affapanick* by the Virginian Indians, and *flying squirrel* by the English, which, by extending the skin attached to its legs, in the form of wings, flies three or four hundred feet at a time; *Hist. de Nouv. Monde par Jean Laët, lib. 3. p. 88.*—The flying squirrels are of the size of a large rat, and of a grayish white colour. They are as drowsy and indolent as the other squirrels are vigilant and active. They are called *flying squirrels*, because they fly from one tree to another by means of a membrane which extends, in the form of wings, when they take their little flights; *Voy. de la Hontan, tom. 2. p. 42.*—The flying squirrels come from North America; but they have lately been discovered in Poland; *Edw. Hist. of Birds, p. 191. Gatesby, Hist. Nat. Carol. tom. 2. p. 76.*

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where they are rare, and confined to some northern countries, as those of Lithuania and Russia. This small animal dwells upon trees, like the squirrel. It moves about from branch to branch; and, when leaping from one tree to another considerably distant, the loose skin or membrane is stretched forward by the fore-feet, and backward by the hind-feet. The skin being thus stretched, and drawn out laterally above an inch, augments the surface of the body, without increasing its quantity of matter, and, of course, retards so much the acceleration of the fall, that, by a single leap, the creature is enabled to sail to a considerable distance. This motion has no resemblance to the flying of birds, or the fluttering of bats, both of which are performed by striking the air with repeated vibrations. It is only a simple leap, depending on a single impulse: The motion produced by that impulse is prolonged, because the animal's body is rendered specifically lighter, is more powerfully resisted by the air, and, consequently, falls more slowly. The expansion of the skin from foot to foot is peculiar to the flying squirrel; and this character is sufficient to distinguish it from all other squirrels, rats, and dormice. But the most remarkable peculiarities of Nature are seldom confined to a single species. In the same genus, there is another animal with a similar skin, which extends not only from foot to foot, but from the head to the tail. This animal, a figure and de-

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scription of which is given by Seba *, under the name of the *Virginian flying-squirrel*, seems to differ so greatly from our flying squirrel, as to constitute a distinct species. We cannot, however, determine the nature of this animal; it may exist, and be of a different species from our flying squirrel. But it may be a simple variety only, or perhaps an accidental or monstrous production; for it is mentioned by no traveller or naturalist. Seba is the only person who has seen it in the cabinet of *Vincent*. I am always suspicious of descriptions made in cabinets; for the animals in these repositories are often manufactured in such a manner as to render their appearance most singular.

We have kept the flying squirrel a long time in a living state. It has been pointed out by many travellers. It is mentioned by Sagard Theodat †, Jean de Laet ‡, Fernandes §, La Hontan §, Denys*, Catesby,

* Seba, vol. 1. p. 72. tab. 44. fig. 3.

† Voyage au pays des Hurons, p. 305.

‡ Hist. du Nouveau Monde, p. 88.

§ *Quimichpatlan, seu mus volans, fusco pilo nigroque promiscue tegitur, qui prope brachia et crura est prolixior, ac parvarum alarum formâ. . . . Est autem caeteris minor, parvo et murino capite, magnis auriculis, &c.*; Fernand. Hist. Nov. Hisp. p. 9. But this author is wrong when he says, that the long hair serve the animal for wings; for it is unquestionably the prolongation of the skin which answers this purpose.

§ Voyage de la Hontan, tom. 2. p. 42.

* The hair of the flying squirrels is blacker than in the French squirrels. Their wings extend from the fore to the hind feet, are about two inches broad, very thin, and covered with fine down. Their flight seldom exceeds thirty or forty paces; but,

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Catesby*, Dumon†, Le Page de Pratz‡, &c. ; and good descriptions and figures of it are given by Klein, Seba, and Edwards. Our own observations, with regard to this animal, correspond very well with what these authors relate. It is much smaller than the squirrel. The one in our possession weighed two ounces only, which is nearly the weight of a common bat ; but the squirrel weighs eight or nine ounces. Some of them, however, are larger. We have a skin of a flying squirrel, which, from its dimensions, must have belonged to a larger animal than the ordinary kind.

The membrane, or expansion of the skin, which unites the fore and hind legs of the flying squirrel, and supports it in the air, makes it approach to the bat. It also resembles the bat in its natural disposition ; for it reposes and sleeps during

but, if they fly from tree to tree, double these distances will be necessary ; *Descript. Geog. de Amerique Septent. tom. 2. p. 331.*

* Hist. Nat. de la Caroline, p. 76.

† In Louisiana, two species of squirrels are very common ; the one is entirely similar to those of France, the other has a little more of the ash-colour, and between the two fore-feet there is a membrane, by means of which it springs from one tree to another at considerable distances ; *Mem. sur la Louisiane, p. 81.*

‡ The flying squirrels have received their denomination from their faculty of leaping from one tree to another, at the distance of above twenty-five or thirty feet. Their hind feet are connected to the fore feet by a membrane, which supports them in the air when they leap. They seem to fly ; but they sink lower down, &c. ; *Hist. de la Louisiane, par M. le Page du Pratz, tom. 2. p. 98.*

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during the day, and resumes its activity in the evening. It is easily tamed; but it is subject to become enraged, and must be kept in a cage, or restrained by a small chain. Flying squirrels are fed with bread, fruits, and seeds. They are particularly fond of the buds and young shoots of the pine and birch trees. They search not for nuts and almonds, like the squirrels. They make a bed of leaves, in which they sleep during the whole day, and never depart from it till night, when stimulated by hunger. As they have little activity, they become an easy prey to pine-weasels, and other animals which climb trees; and, of course, the species is not numerous, though the females generally bring forth three or four young at a time.

S U P P L E M E N T.

The SAILING, or Great FLYING-SQUIRREL *.

I formerly remarked, p. 311. that there were larger flying squirrels than those of which we have given

* Le Taguan; *Buffon*.

Sciurus Sagitta, hypochondriis prolaxis volitans, cauda plano-pinnata lanceolata; *Linn. Syst. Nat.* p. 88.

Sciurus petaurista; *Pallas, Miscel. Zool.* p. 54. tab. 6.

Sciurus maximus volans, seu *felis volans*; *Briffon. quad.* p. 12.

Flying cat; *Nieuboff*, p. 354.

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given descriptions, and that there is, in the royal cabinet, a skin five and a half inches long, while that of the common species exceeds not four inches. But this difference is nothing, when compared to that which subsists between our flying squirrel, and the East India *taguan*, whose skin was sent from Machian to the Prince de Condi, who was so obliging as to allow me to examine it. This great flying squirrel, which is preserved in the cabinet of Chantilly, was twenty-three inches long, from the point of the nose to the extremity of the body. These animals are found not only at Machian, but in the Philippine islands, and probably in many other parts of India. The one just mentioned was taken on the Malabar coast. Its size is gigantic, when compared with the flying squirrels of Russia and America; for the latter exceeds not four and a half or five inches in length. Nevertheless, the *taguan*, or great flying squirrel, resembles the other species in figure and in the prolongation of the skin, which is perfectly similar. But, as the difference of size is so remarkable, it ought to be considered as a distinct species.

The great flying squirrel differs from the small,
1. In size, being twenty-three inches long. 2. In the length of the tail, which is twenty-one inches. Besides, the tail is not flat, like that of the common kind, but round, like that of the cat, and covered with long blackish brown hair. 3. The eyes and ears of both species are similarly situated,

ted, and the black whiskers are proportionally the same; but the head of the large kind is smaller in proportion to the size of its body. 4. The face is entirely black; the sides of the head, and the cheeks, are mixed with black and white hairs; on the top of the nose, and round the eyes, the hair is a mixture of black, white, and red. Behind the ears there are dark long brown hairs, which cover the sides of the neck; these are not to be found in the common kind. The top of the head, and of the whole body, as far as the tail, is sprinkled with black and white hairs, where the black predominates, because the white hairs are black at the roots, and become white near their extremities only. The under part of the body is of a dirty white colour, which extends below the belly. 5. The prolongation of the skin is covered above with dark brown hair, and below with yellowish ash-coloured hair. The legs are of a reddish black colour, and the upper part of the tail is brown. This brown shade grows gradually deeper till it becomes black at the extremity of the tail. 6. The feet of the great flying squirrel have the same number of toes as in the common kind; but those of the former are covered with black, and those of the latter with white hair. The claws are thin and hooked like those of a cat. From this resemblance, and that of the tail, the animal has received the name of the *flying cat*. The large claw of the fore-feet is five lines and a half long,

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long, and the longest of the hind-feet only five lines. The figure of this animal, drawn by M. de Seve as perfectly as the state of the dried skin would permit, is here represented. We have called it *Le Taguan*, in consequence of the following passage in the general history of voyages *.

‘ In the Philippine islands, there is a species
‘ of flying cat, of the size of a hare, and of the
‘ colour of a fox, which the natives call *Taguan*.
‘ It has wings like a bat, but covered with hair,
‘ which they make use of in leaping from one
‘ tree to another, at the distance of thirty palms.’

After writing this article, a work of M. de Vosmaër, containing descriptions of several quadrupeds and birds, has come to my hands. I there read with pleasure the description of the great flying squirrel, and some remarks concerning the smaller species.

M. de Vosmaër informs us, that he saw, in the possession of the Prince of Orange, two of the small flying squirrels alive; but that they did not live long.

‘ They slept,’ he says, ‘ almost the whole day.
‘ When briskly pushed, they made a small effort, as if they intended to fly; but they stole
‘ away immediately, being exceedingly timid.
‘ They are fond of heat; and, when uncovered,
‘ they quickly concealed themselves under the
‘ wool which formed their bed. Their food was
‘ soaked

* Hist. gen. des Voyages, tom. 10. p. 410.

‘soaked bread, fruits, &c. which they eat, like
 ‘the squirrels, by sitting on their posteriors, and
 ‘holding the food with their fore paws. At
 ‘the approach of night, they become more vi-
 ‘vacious and restless. The difference of climate
 ‘had unquestionably great influence on these
 ‘animals, which appeared to be extremely deli-
 ‘cate *.’

These remarks of M. de Vosmaër correspond with my own observations. I have just now one of these little animals (March 17. 1775) living in a cage, with a small box in its bottom. It continues the whole day covered with the cotton, and comes out in the night only to take food. It has a faint cry, like that of a mouse, which is never heard but when the animal is forced out from among the cotton. Though its teeth are very small, it bites severely. Its hair is extremely smooth and agreeable to the touch. There is no way of making it extend its wings, but by obliging it to fall from a height. It is so remarkably chilly, that I cannot conceive how it can defend itself from the cold in the northern climates; since in France, if not kept in a chamber, and furnished with wool or cotton to lie on, and even to wrap itself all over, it would perish in a very short time.

With regard to the taguan, or great flying squirrel, let us attend to the remarks of M. de Vosmaër: ‘The small flying squirrel described
 ‘by

* Descript. d’une ecureuil volant, par M. Vosmaër, p. 9.

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by M. de Buffon, has a great affinity to the larger species. They both have similar membranes, not for flying, but for supporting themselves in the air, when they leap from branch to branch.

The skin of the *great flying squirrel*, which is a more proper appellation than that of the *flying cat*, was sent me in a dried state. M. Alamand has given a short description of this animal from a female subject preserved in the cabinet of the Leyden academy.

Valentine first mentioned these animals, and says, that they are found in the island of Gilolo, and go by the name of *flying civets*. He remarks, that they have long tails like those of the monkeys; that, when at rest, their wings are not seen; that they are wild and timid; that their head is reddish, with a mixture of gray; that their wings, or rather membranes, are covered on both sides with hair; that their bite is so strong, that they easily escape from a wooden cage in a single night; that, by some people, they are called *flying monkeys*; that they are also found in the island of Ternat, where they were first mistaken for squirrels, only the head was thinner and larger, there was gray hair above the muzzle, and a black line run the whole length of the back; that the extensible skin, which adheres to their bodies, is garnished with hair, as white, on the under side, as that of the belly; and that, when they leap

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' leap from tree to tree, they extend their mem-
' branes, and have then the appearance of being
' flat.'

In the work of M. l'Abbé Prevost, it is said, that this animal is found in the Philippine islands, where it is called *taguan*.

' I have seen two females, the one in the Ley-
' den cabinet, the other in that of *M. Heeteren*
' at the Hague. The colour of the body was a
' light chesnut, deeper on the back, and the end
' of the tail was blackish. The difference of
' sex is distinguishable by six small paps, placed
' at equal distances, in two rows, from the breast
' to the belly. I have also seen two males in
' the Prince of Orange's cabinet. The length
' of the body, in Rhenish measure, was one foot
' five inches, and that of the tail one foot eight.
' The head is more pointed than that of the
' squirrel.

' The ears are small, pointed, and covered on
' the outside with short, fine, clear brown hair.
' Above the eyes, there are two long brownish
' yellow hairs; but there are none on the eye-
' lids. On each side of the muzzle, there are
' long, black, rigid whiskers. The nose is na-
' ked; the teeth, like those of the squirrels, are
' two above and two below, of a deep yellow
' colour, and very long. The grinders are at
' the bottom of the muzzle.

' Both fore and hind feet, especially the latter,
' are concealed by the membrane, which covers
' them

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them nearly as far as the paws. The fore feet are divided into four black toes, the two middlemost, and particularly the third, being much longer than the other two. The hind-feet are also black, and divided into five toes, four of which are of equal length; but the fifth, or innermost, is much shorter, and has the appearance of a simple appendage. The claws are large, sharp, black before, white below, and broad at the origin. The articulations of the toes are similar to those of the squirrels.

The skin or membrane is thinnest in the middle, where it is about four inches broad on each side, and exceeds not the thickness of fine Indian paper. In other parts, it is also very thin, of a clear texture, and garnished with small chestnut hairs. Near the fore and hind feet, it becomes thicker, and rises in the form of a bag, widest at the thighs, and growing gradually narrower towards the paws. This part is closely covered with brown and black hairs. Upon the fore paws it appears loose, hangs down like a rag, and is covered with thick hair. The external edges of this skin are bounded with a thick selvage of black and gray hairs.

The upper part of the head, the back, and the origin of the tail, are covered with pretty long, thick hairs, black in the under part, and
‘ mostly

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‘ mostly of a grayish white colour at the sum-
‘ mits.

‘ The hairs of the tail are black, more gray
‘ near the body, and so disposed as to make the
‘ tail appear round.

‘ The cheeks are of a grayish brown colour ;
‘ and the throat, breast, and belly, are of a clear
‘ whitish gray. On the under side of the mem-
‘ brane there are also gray hairs ; but they are
‘ very thinly scattered.’

The

Plate CXLII.



A. Bell del.

FLYING SQUIRREL.

Plate. CXLIII.



J. B. S. Sculp.

FLYING SQUIRREL.

Plate CXLIV.



A. Bell's engraving.

SAILING, or great FLYING SQUIRREL.





A. Bell's engr.

Great FLYING SQUIRREL.

The GRAY SQUIRREL*.

THIS animal inhabits the northern regions of both worlds. It has a great resemblance to the squirrel, from which it differs only by the following external characters. It is larger than the squirrel, and its hair is not reddish, but of a gray colour, more or less deep. The ears are deprived of the long hairs, which adorn those of the common squirrel. These differences, which are constant, seem sufficient to constitute a distinct species. Several authors maintain, that the gray squirrels of Europe differ from those of America; that the former belong to the common kind, whose colour changes with the season in our northern climates. Without pretending to deny this last fact, which,

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however,

* The ears of the gray squirrel are plain; the hair is of a dull gray colour, mixed with black, and often tinged with a dirty yellow. The belly and insides of the legs are white. The tail is long, bushy, gray, and striped with black. It is about the size of a half-grown rabbit; *Pennant's synopsis of quadr.* p. 282.

Petit gris; *Buffon*.

Gray squirrel; *Josselyne's voy. Gatsby's Carolina*, vol. 2. p. 74.
Smith's voy. p. 27. *Kalm's voy.* p. 95. 310.

Fox squirrel; *Lawson's Carolina*, p. 124.

Sciurus cinereus Virginianus major; *Raii synopsis quadr.* p. 215.

Sciurus cinereus; *Lynn. Syst. Nat.* p. 86.

Sciurus cinereus, auriculis ex albo flavicantibus. *Sciurus Virginianus*. L'Écureuil de Virginie; *Briffon. Regn. anim.* p. 107.

however, is not properly ascertained, we consider the gray squirrel of Europe and that of America as the same animal, and as a species distinct from the common squirrel; for our squirrels are found in North America as well as in the north of Europe. They are of the same size, and their colour is of a more or less lively red, according to the temperature of the climate. At the same time, we find, in both Continents, other squirrels, which are larger, and whose hair is gray or blackish in all seasons. Besides, the fur of the gray squirrel is much finer and softer than that of the common kind. Hence it appears, that these two animals, the differences between which are constant, and their species, though very similar, have never intermixed, ought to be regarded as separate species. M. Regnard * affirms positively,

* These gray squirrels are the same with the French squirrels, only their reddish colour changes to gray during the winter snows. The farther north, they turn always more gray. The Laplanders make war against them in the winter; and their dogs are so well trained to this species of hunting, that they never failed to discover the squirrels upon the highest trees, and to advertise the hunters who accompanied us. We shot some of them with our guns; for the Laplanders had not then their round arrows, with which they bring down these animals; and we had the pleasure of seeing with what dexterity and quickness they take off the skin. The hunting season begins about Michaelmas. Almost every native of Lapland is occupied in this business, which is a considerable article of commerce. Forty skins are sold for a crown. But there is no merchandise in which a man may be more deceived, than in that of the gray squirrel and ermines; for you buy without seeing, the fur side of the skins being always turned inmost. There

positively, that the gray squirrels of Lapland are the same animals with our French squirrels. This authority would be sufficient, were it not contradicted by other evidences. M. Regnard has written some excellent theatrical works; but he was not much versant in natural history: Neither did he remain long enough in Lapland to see the squirrels change their colour. It is true, that some naturalists, and among this number is Linnaeus, tell us, that, in the northern regions, the squirrels change their colour in

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winter;

is no distinction to be made. The good and bad are all sold at the same price. We learned from our Laplanders a surprising fact concerning these gray squirrels, which was afterwards confirmed by our own experience. They often change the places of their residence, and not one of them can be found, during the whole winter, where there were millions the preceding year. In their marches from one part of the country to another, when it becomes necessary to pass a lake or a river, which are very frequent in Lapland, these animals lay hold of a piece of pine or birch bark, which they draw to the edge of the water, mount upon it, and abandon themselves to the pleasure of the wind and waves. They erect their tails in the form of sails; but, if the wind blows too strong, or the waves rise high, both pilot and vessel are overturned. This kind of shipwreck, which often consists of three or four thousand sail, generally enriches some Laplanders, who find the dead bodies on the shore, and, if they have not lain too long on the sand, prepare the furs in the ordinary manner. But, when the winds are favourable, the poor creatures make a happy voyage, and arrive at their destined port. This remarkable fact might have the appearance of a fable, if it had not fallen within my own observation; *Œuvres de M. Regnard, tom. 1. p. 163.*

winter*; which is not improbable, as, in these climates, hares, wolves, and weasels also change their colours. But this change is from yellow or red to white, and not from yellow or red to an ash-colour. But, to confine ourselves to the squirrel, Linnaeus, in the *Fauna Suecica*, says, *aestate ruber, hyeme incanus*. The change, therefore, is from red to white, or rather from reddish to whitish; and it is not easy to conceive why Linnaeus, in the last edition of his *Systema naturae*, should have substituted, in place of *incanus*, the word *cinereus*. M. Klein† assures us, on the contrary, that the squirrels in the neighbourhood of Dantzick are reddish in winter as well as in summer; and that there are, in Poland, gray and blackish squirrels as well as the reddish kind, which never change their colour. These gray and blackish squirrels are found in Canada‡, and in all parts of North America.

* *Sciurus vulgaris* habitat in arboribus frequens, aestate ruber, hyeme incanus; *Faun. Suec. p. 9.* *Sciurus vulgaris* Aestate ruber, hyeme cinereus; *Syst. nat. p. 63.*

† *Sciurus vulgaris rubicundus* . . . Nostrates tam in silvis quam in caveis vulgares et hyeme et aestate rubri . . . In Polonia utique vulgares cinerei non mutant pellem; haud rari quoque vulgares nigricantes, &c.; *Klein quad. p. 53.*—In Ukrania, inter sciuros coloris rutili, nigricantes spectantur; *Rzaczynski, auct. hist. nat. Polon. p. 321.*

‡ The Virginian squirrels are nearly of the size of rabbits. They are black, or mixed with black and white. However, the greatest number of them are ash-coloured; *Descript. des Indes Occident. par Jean Laët, p. 88.*—The finest fur brought from

merica. Hence the gray squirrel may be regarded as an animal common to both Continents, and of a different species from the ordinary squirrel.

Besides, we never see our squirrels, though very numerous in the forests, unite together in flocks. Neither do we ever see them travel in company, approach the waters, or traverse rivers on the bark of trees. Thus they differ from the gray squirrel, not only in size and colour, but in manners and habits; for, though the navigations of the gray squirrel seem to be hardly credible; yet they are attested by such a number of witnesses*, that we cannot say absolutely that they are false.

Of all the wild quadrupeds, the squirrel is subject, perhaps, to the greatest varieties, or whose

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species,

from the Iroquois country, is the skin of the black squirrel. This animal is as large as a cat of three months old; it is extremely vivacious, very gentle, and easily tamed. The Iroquois make robes of this fur, which they sell for seven or eight pistoles; *Charlevoix, Hist. de la Nouv. France, tom. 1. p. 273.*

* Rei veritate nititur, quod Gesnerus ex Vincentio Beluacensi et Olao M. referet: Sciuros, quando aquam transire cupiunt, lignum levissimum aquae imponere, eique insidentes, et cauda, non tamen ut vult, erecta, sed continuo mota, velificantes, neque flante vento, sed tranquillo aequore transvehit; quod fide dignus fidusque meus emissarius ad insulas Gothlandiae plus simplici vice observavit, et cum spoliis in littoribus ibidem collectis redux, mirabundus mihi retulit; *Dissertatio de Sciuro volante. Transact. Angl. No. 427. pag. 38. Klein de quad. pag. 53.*—Cortice interdum sciurus navigat; *Linn. sist. nat. pag. 63.*

species, at least, is approached by the greatest number of neighbouring species. The white squirrel of Siberia * appears to be only a variety of the common kind. The black † and the deep gray ‡ squirrels of America may be varieties of the gray squirrel. The Barbary, the palm, and the ground squirrels, are three species which make a very near approach to each other.

We have few historical facts concerning the gray squirrel. Fernandes || remarks, that the gray or blackish squirrels of America dwell upon trees, and particularly upon the pine; that they feed upon fruits and seeds; that they amass provisions for the winter, which they deposit in the holes of trees, where they also retire to pass the severe season; that in these holes the females bring forth their young, &c. Thus the manners of the gray squirrel differ from those of the common kind, who build nests, like the birds, on the tops of trees. We cannot, however, pretend to determine absolutely that this blackish squirrel of Fernandes is the same with the gray squirrel of Virginia, or that both of them are the same with the gray squirrel of Europe. We only

mention

* *Sciurus albus Sibericus*; *L'écureuil blanc de Sibérie*; *Brisson. Regn. anim. p. 151.*

† *Sciurus Mexicanus*; *Hernand. Hist. Mexic. p. 582.*—*Sciurus niger*; *L'écureuil noir*; *Brisson. Regn. anim. p. 151.*

‡ *L'écureuil d'Amerique*; *Seba, vol. 1. p. 78. tab. 48. fig. 5.*—*Sciurus obscurus cinereus.*—*Sciurus Americanus*; *Brisson. Regn. anim. p. 152.*

|| *Francisci Fernandes*; *Hist. animal. nov. orbis, p. 8.*

Plate CXLVI.



A. Hallenbach sculp.

GRAY SQUIRREL.

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* *Sciurus albus Sibericus*; *L'écureuil blanc de Sibérie*; *Briss. Regn. anim. p. 151.*

† *Sciurus Mexicanus*; *Hernand. Hist. Mexic. p. 582.* — *Sciurus niger*; *L'écureuil noir*; *Briss. Regn. anim. p. 151.*

‡ *L'écureuil d'Amerique*; *Seba, vol. 1. p. 78. tab. 48. fig. 5.* — *Sciurus obscura cinereus.* — *Sciurus Americanus*; *Briss. Regn. anim. p. 152.*

|| *Francisci Fernandes*; *Hist. animal. nov. orbis, p. 8.*

Plate CXLVI.



A. Hall sculp.

GRAY SQUIRREL.

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mention it as a probability; for these three animals are nearly of the same size and colour, inhabit the same climates, have precisely the same figure, and their skins are equally used under the denomination of the *gray fur*, or the fur of the *gray squirrel*.

The

The PALM SQUIRREL*, the BARBARY SQUIRREL**, and the GROUND SQUIRREL***.

THE palm squirrel is of the size of a rat, or of a small squirrel. He lives upon the palm-trees, and from that circumstance he has had his name. By some he is called the *palm-rat*,

* The palm squirrel has plain ears, an. obscure pale yellow stripe on the middle of the back, another on each side, a third on each side of the belly, the two last being very distinct. the rest of the hair on the sides, back, and head, is black and red, very closely mixed; that on the thighs and legs is more red. The belly is of a pale yellow. The hair on the tail does not lie flat, but encircles it; it is coarse, and of a dirty yellow, barred with black; *Pennant's Synops. of quad. p. 287.*

Le palmiste, rat palmiste, écureuil des palmiers.

Mustela Africana; Clusii Exot. p. 112.; Raii synops. quad. p. 216.

Mustela Libyca; Nieremberg, hist. nat. p. 172.

Sciurus palmarum subgriseus, striis tribus flavicantibus, caudaque albo nigroque lineata; Lynn. syst. nat. p. 86.

Sciurus palmarum, coloris ex rufo et nigro mixti, taeniis in dorso flavicantibus; Brisson. quad. p. 109.

** The Barbary squirrel has full black eyes, and white orbits. The head, body, feet, and tail, are cinereous, inclining to red. The colour is lightest on the legs. The sides are marked lengthwise with two white stripes. The belly is white. The tail is bushy, marked regularly with shades of black, one beneath another. It is of the size of the common squirrel; *Pennant's synops. of quad. p. 287.*

Sciurus getulus; Caii opusc. p. 77. Gesner. quad. p. 847. Aldrov. quad. digit. p. 105.

THE PALM-SQUIRREL, &c. 329

rat, and by others the *palm-squirrel*. But, as he is neither a rat nor a squirrel, we have given him the simple denomination of *Le palmiste*. The form of his head is nearly the same with that of the short-tailed field-mouse, and covered with frizled hair. His long tail trails not, like that of the rat, but is elevated vertically, without, however, lying on his back, like that of the squirrel.

Sciurus getulus, fuscus, striis quatuor albidis longitudinalibus; *Linn. syst. nat.* p. 87.

The Barbary squirrel; *Edwards*, p. 198.

Sciurus coloris ex rufo et nigro mixti, taeniis in lateribus alternatim albis, et fuscis aut nigris; *Briffon. Regn. anim.* p. 109.

Le barbaresque; *Buffon*.

*** The ground-squirrel has plain ears. The ridge of the back is marked with a pale yellow stripe, bounded above and below with a line of black. The head, body, and tail, are of a reddish brown colour; the tail is darkest. The breast and belly are white, and the nose and feet pale red. The eyes are full; *Pennant's synopsis of quad.* p. 288.

Mouse-squirrel; *Josselyn's voy.* p. 86.

Ground-squirrel, *Ecureuil de Terre*; *Lawson's Carolina*, p. 124. *Catesby's Carolina*, vol. 2. p. 75. *Edwards*, p. 181. *Kalm*, vol. 1. p. 322. tab. 1.

Sciurus Listeri; *Raii synopsis quad.* p. 216.

Sciurus minor virgatus; *Nov. Com. Petrop.* vol. 5. p. 344.

Baern-daeskie; *Le Brun. voy. Muscov.* vol. 2. p. 432.

Sciurus striatus, flavus, striis quinque fuscis longitudinalibus; *Linn. syst. nat.* p. 87. *Klein. quad.* p. 53.

Sciurus rufus, taeniis ex albo flavicantibus intermixtis——

Sciurus Carolinensis; *Briffon. Regn. anim.* p. 155.

Le Suisse; *Buffon*.

L'Ecureuil Suisse; *Voy. de la Hontan*, tom. 2. p. 43. *Descript. de l'Amerique Septent. par Denys*, tom. 2. p. 331.

squirrel. The tail is covered with hair longer than that of the body, but shorter than the hair on the tail of a squirrel. Along the spine of the back, from the neck to the tail, there is a whitish stripe, accompanied on each side with a brown stripe, which is followed by another white stripe. This striking character, by which this animal would appear to be distinguished from all others, is found to be nearly the same in the Barbary and ground squirrels. These three animals have such a resemblance to each other, that Mr Ray * imagined they constituted but one species. If it be considered, however, that the palm and Barbary squirrels are only found in the warm climates of the Old Continent, and that the ground squirrel, described by Lister, Catesby †. and Edwards ‡, is peculiar to the cold and temperate regions of the New World, we must conclude them to be different species. By a closer examination, we perceive that the white and brown stripes of the ground squirrel are differently disposed from those of the palm-squirrel. In the palm-squirrel, the white stripe, which extends along the spine of the back, is black or brown on the ground squirrel, and the white stripes are placed next the

* *Sciurus getulus* Cail, *mustela Africana* Clusii, eadem nobis videtur. — Descriptio *mustelae Africanæ* cum *sciuri getuli* descriptione satis bene convenit, ut non dubitem idem animal esse: Huic similis est *sciurus* a clarissimo *Dom. Lister* observatus et descriptus; *Rati synopsis quad.* p. 216.

† Catesby, *hist. nat. de la Caroline*, tom. 2. p. 75.

‡ Edwards, *nat. hist. of birds*, part 4. p. 181.

the black, as the black are next the white in the palm-squirrel. Besides, the palm-squirrel has only three white stripes; but the ground-squirrel has four. The latter turns his tail upon his back, but the former does not. The palm-squirrel dwells upon trees; but the ground-squirrel keeps always on the surface of earth, and, from this circumstance, he has obtained his name. In fine, the ground-squirrel is smaller than the palm-squirrel: From all these considerations, they appear to be two distinct species.

With regard to the Barbary squirrel, as it is a native of the same continent and climate, as it is of the same size, and nearly of the same figure, with the palm-squirrel, they might be considered as varieties of the same species. By comparing, however, the description and figure of the Barbary squirrel given by Caius*, and copied by Aldrovandus† and Johnston‡, with the description and figure we have given of the palm-squirrel, and by again comparing Edwards's description and figure of the Barbary squirrel, we shall perceive distinctions so remarkable as to point out these animals as belonging to different species. All the three are in the royal cabinet. In the Barbary squirrel, the head and face are rounder, the ears larger, and the hair of the tail longer and more bushy, than in the palm-squirrel. In the

* *Sciurus getulus Caii, apud Gesner. hist. quad. p. 847.*

† *Aldrov. de quad. digit. p. 405.*

‡ *Johns. de quad. p. 113.*

the form of the head and body, the Barbary squirrel resembles the squirrel more than the rat, and the palm squirrel resembles the rat more than the squirrel. The Barbary squirrel has four white stripes, the palm-squirrel only three. In the palm-squirrel, the middle white stripe runs along the spine of the back; but, in the Barbary squirrel, the stripe along the back is black mixed with red, &c. Besides, these animals have nearly the same manners and dispositions as the common squirrels: They all feed upon fruits, which they carry to their mouth by their fore-paws. They have the same voice and cry, the same instinct and agility. They are extremely gentle and lively. They are easily tamed, and contract such an attachment to their habitation, that, after leaving it, they spontaneously return. The figure of both is handsome. Their robe, which is striped with white, is more beautiful than that of the squirrel; their size is smaller, their body lighter, and their movements equally prompt. Like the common squirrel, the palm and Barbary squirrels dwell on the tops of trees; but the ground squirrel never rises from the earth, in which, like the long-tailed field-mouse, he makes a retreat impenetrable by the water. Unless completely tamed, he bites every person indiscriminately *. Hence, in manners and dispositions, he has a greater resemblance to the rats and field-mice than to the squirrels.

The

* Voyage du Pays des Hurons, par Sagard Theodat, p. 306.

Plate CXLVII



PALM SQUIRREL.

Plate CXLVIII.



BARBARY SQUIRREL.

Plate CXLIX.



A. Bell sculp.

GROUND SQUIRREL.

The GREAT ANT-EATER *, the MIDDLE ANT-EATER **, and the LEAST ANT-EATER ***.

IN South America, there are three animals, with a long muzzle, a narrow mouth, without any teeth, and a long round tongue, that they

* The great ant-eater has a long slender nose, small black eyes, short round ears, a slender tongue, two feet and a half long, which lies double in the mouth; slender legs, four toes on the fore feet and five on the hind. The two middle claws on the fore feet are very large, strong, and hooked. The hair on the upper part of the body is half a foot long, black mixed with gray. From the neck cross the shoulders to the sides, there is a black line bounded above with white. The fore legs are whitish, marked above with a black spot. The tail is clothed with very coarse black hairs, a foot long. The length, from nose to tail, is about three feet ten inches, and that of the tail is two feet and a half.

Le Tamanoir, le Fourmiller-tamanoir, le mange-fourmis, le gros mangeur de fourmis.

Tamandua-guacu five major; *Pison. hist. Brasil. p. 320.*

Tamandua guacu; *Marc. hist. nat. Brasil. p. 225.*

Pismire-eater; *Nieuboff, p. 19.*

Mange-fourmis, ou Renard Americain; *Voy. de Desmarchais, tom. 3. p. 307.*

Tamandua major, cauda panniculata; *Barrere, hist. Franc. Equinox. p. 162.*

Myrmecophaga jubata, palmis tetradactylis, plantis pentadactylis, cauda jubata; *Linn. syst. nat. Klein. quad. p. 45. tab. 5. fig. 1.*

Myrmecophaga rostro longissimo, pedibus anticis tetradactylis, posticis pentadactylis, cauda longissimis pilis vestita; *Briffon. quad. p. 15.*

** The

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they thrust into the ant nests, and retract it when covered with these insects, which constitute their principal food. The first of these ant-eaters is called by the Brafilians *Tamandua-guacu*,

** The middle ant-eater has a long slender nose, bending a little down, small black mouth and eyes, and small upright ears. The bottoms of the fore feet are round, with four claws on each, and five on the hind feet. The hair is shining, hard, and of a pale yellow colour; along the middle of the back, and on the hind legs, it is dusky. On each side of the neck, there is a black line, which crosses the shoulders, and meets at the end of the back. The tail is covered with longer hair than the back, is taper, and bald at the end. The length, from nose to tail, is one foot seven inches, and that of the tail ten inches; *Pennant's Synops. of quad. p. 332.*

Tamandua-i; *Pison. hist. Brasl. p. 321. Marcgr. p. 225. Raii synops. quad. p. 242.*

Tamandua minor; *Piso. Brasl. p. 320. Barrere, Hist. Franc. Equinox. p. 162.*

Tamandua-guacu; *Nieuboff, p. 19.*

Myrmecophaga rostro longissimo, pedibus anticis tetradactylis, posticis pentadactylis, cauda fere nuda; *Briffon. quad. p. 16.*

Myrmecophaga tetradactyla, palmis tetradactylis, plantis pentadactylis, cauda calva; *Linn. Syst. Nat. p. 52.*

*** The least ant-eater has a conic nose, bending a little down; small ears, hid in the fur; two hooked claws on the fore feet, the exterior much the largest, and four on the hind feet. The head, body, limbs, and upper part and sides of the tail are covered with long, soft, silky hair, or rather wool of a yellowish brown colour. The length, from nose to tail, is seven inches and a half, and that of the tail eight and a half, the last four inches of which, on the under side, are naked. The tail is thick at the base, and tapers to a point; *Pennant's synops. of quad. p. 333.*

Le Fourmillier; le plus petit Fourmillier; le petit mangeur de Fourmis; animal Americain que les naturels de la Guiane appellent *Ouatirionacu*.

Tamandu

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guacu, or *great Tamandua*, to which the French inhabitants of America have given the name of *Tamanoir*. From the end of the muzzle to the origin of the tail, it is about four feet in length. The head is from fourteen to fifteen inches long, and the tail about two feet and a half, covered with coarse hair more than a foot in length. The muzzle is immoderately long, the neck short, the head narrow, the eyes small and black, the ears roundish, the tongue thin, more than two feet long, and, when retracted, it folds up in the mouth. The legs exceed not a foot in length, those before being a little longer and thinner than those behind. The feet are round. The fore-feet have four claws; and the two middlemost are largest. Those behind have five claws. The colour of the hairs, both on the body and tail, is a mixture of black and white. The hair on the tail is disposed in the form of a plume, which the animal, when he wants to sleep, or to defend himself from rains or the heat of the sun, turns on his back, and it covers his whole body. The long hairs of the tail

Tamandua minor flavescens; *Barrere, hist. Franc. Equinox.*
p. 163.

Tamandua five Coati Americana alba altera; *Seba, vol. 1.*
p. 60. *tab. 37. fig. 3.*

Myrmecophaga didactyla, palmis didactylis, plantis tetradactylis, cauda villosa; *Linn. syst. nat. p. 51.*

Myrmecophaga rostro brevi, pedibus anticis didactylis, posticis tetradactylis; *Briffen. quad. p. 17.*

The little ant-eater; *Edward's Gleanings, p. 20.*

tail and body are not round through their whole extent, but flat at the extremities, and feel dry to the touch, like withered herbs. When irritated, he gives a brisk agitation to his tail; but, when walking at ease, he allows it to trail and sweep the ground over which he passes. The hair on the anterior parts of his body are shorter than those on the posterior: The latter are turned backward, and the former forward. The anterior parts are also whiter than the posterior. There is a black stripe upon the breast, which stretches along the sides, and terminates on the back near the thighs. The hind legs are nearly black, and those before almost white, with a large black spot about the middle. The great ant-eater runs so slow, that a man can easily overtake him in the chase. His feet seem less fitted for running than for climbing, and seizing cylindrical bodies; for he takes such a forcible hold of a branch or a stick, that it is impossible to make him quit it.

The second of these animals, or the middle ant-eater, is called simply *tamandua* by the Americans. He is much smaller than the former, being only about eighteen inches from the extremity of the muzzle to the origin of the tail. His head is six inches in length. His muzzle is long, and crooked downward. The tail is ten inches long, and naked at the point. The ears are erect, and an inch in length. The tongue is round, eight inches long, and placed in a kind of groove or canal within the lower jaw. The height

height of the legs exceeds four inches; and they are of the same form, and furnished with the same number of claws, as the great ant-eater. He climbs, and adheres firmly to the branches, like the former species, and runs or walks equally ill. Neither can he shelter himself with his tail; because it is too short, and part of it is bare. When he sleeps, he conceals his head under his neck and fore legs.

The third species is called by the natives of Guiana *ouatirionauou*. To distinguish it from the two former, we have given it the appellation of the *least ant-eater*. It is much smaller than the middle kind; for it exceeds not six or seven inches from the extremity of the muzzle to the origin of the tail; the head is two inches long, and the muzzle is proportionally shorter than that of the middle ant-eater. The tail, which is seven inches in length, curls downward at the extremity, where it is naked. The tongue is narrow, a little compressed, and very long. It has almost no neck. The head is thick in proportion to the body. The eyes are placed low, at no great distance from the corners of the mouth. The ears are small, and concealed by the hair. The fore legs are only three inches long, and their feet have but two claws, the outmost of which is much thicker and longer than the inmost. There are four claws on the hind feet. The hair on the body is about nine inches long, soft, and of a brilliant colour, being a mixture

ture of red, with a bright yellow. The feet are not fitted for walking, but for climbing, and laying hold of objects. The animal mounts upon trees, and suspends himself on the branches by the extremity of his tail.

Of this genus, we know only the three species above described. M. Briffon mentions, from Seba, a fourth species, under the name of the *long-eared ant-eater*. But this species seems to be extremely suspicious; for, in Seba's enumeration of the ant-eaters, he says expressly, 'We have, in our cabinet, *six species* of ant-eaters.' He describes, however, only five; and among these five he places the *ysquiepatl*, or stifling weasel, an animal not only of a different species, but of a genus very remote from that of the ant-eaters; since it has teeth *, a flat short tongue, like that of other quadrupeds, and approaches very near to the weasel kind. Of these six species, pretended to be preserved in the cabinet of Seba, there remain only four; for the *ysquiepatl*, which is the fifth, is by no means an ant-eater, and he makes no mention of the sixth, unless the author intended to rank the scaly lizard under this genus, which appears not from his descriptions.

* Vapulavit aliquando optimus autor de nominibus propriis, si *ysquiepatl* seu vulpēculam Mexicanam, tamandum dixit; p. 66. Quasi aliquam omnino speciem, canis septentrionalis fere aemulam, maxilla inferiore crassa et rotunda, binis insignibus dentibus armata, cum tamen de sex diversis speciebus sit professus, quod omnes dentibus careant; *Klein, de quadrup.* p. 43.

descriptions. The scaly lizard feeds upon ants ; he has a long muzzle, a narrow mouth, without any apparent teeth, and a long, round tongue. These characters are common to the scaly lizard and ant-eaters. But the former differs from all other quadrupeds by the singularity of having its body covered with large scales, instead of hair. Besides, it is an animal peculiar to the warm climates of the Old Continent ; while the ant-eaters, whose bodies are covered with hair, are found only in the southern regions of the New world. There remains, therefore, but four species, instead of six announced by Séba ; and, of these four, only one is recognisable from his descriptions, which is our third or least ant-eater, to whom Séba has given but one claw to each fore foot *, instead of two. The other three are so ill described, that it is impossible to distinguish

Y 2 their

* Fig. 3. *Tamandua*, or another white American *coati*. This animal is totally different from the preceding (he means that of table 37. fig. 2. See the following note). The head is much shorter, and the ears much smaller. The eyes are a little larger, and the inferior part of the muzzle somewhat longer. Their tongues are more similar, both of them being fitted for swallowing ants. The shoulders are large, the body thick and short, and the fore-feet are armed with one large hooked claw. The hind legs and feet resemble those of an ape. Its white woolly hair is shorter than that of the preceding ; and the same may be said of its crisped tail. This animal is reckoned the rarest of its species. The Negroes of Surinam called it *coati*, and relate, that, when apprehended, it rolls itself up, with the feet so closely attached to each other, that it is impossible to force them asunder. It dies in a moment, when immersed in spirit of wine, or in the liquor *kilduivel* ; Séba, vol. 1. p. 60. plate 37. fig. 3.

their true species. I thought it proper to transcribe these descriptions entire, not only to prove what I have advanced, but to give an idea of what credit is due to this writer. The animal he calls *tamandua murmecophage d'Amerique*, tom. 1. p. 60. tab. 37. fig. 2. has no relation to any of the three of which we are here treating. To be convinced of this fact, we have only to read the author's description *. The second, which he

* *Tamandua murmecophage d'Amerique*. This animal is very common in the West Indies; but the only one we have seen was brought from the East Indies. Several naturalists have entertained marvellous ideas concerning this creature. Some imagined it to be the *leo formicarius*, others the *formica leo*, the *formica vulpes*, the *formica lupus*, &c. M. Poupert, in the *Mem. de l'Acad. royale des sciences*, ann. 1704, p. 235. remarks, that this animal was gray, and made snares, like a spider, for entangling ants; but this comparison seems not to be just. Bastamantanus, who has written a book upon the reptiles mentioned in the Bible, regards the *murmeco leo*, another name for this animal, as a species of beetle called the *horned beetle*, and which is denominated the *flying flag* by the Germans. (*All this, we perceive, is very important and very useful in the description of a quadruped.*) But, continues the author, all these descriptions, and several others, express not the nature of this animal, the figure of which we have given from the original. It is covered with soft woolly hair, has a short neck, broad shoulders, a long narrow head and muzzle, from which issues a long tongue, adapted for seizing and swallowing ants. The wisdom of the Creator has furnished these animals with the necessary organs for collecting food agreeable to their taste. The fore paws have each, *beside the ordinary toes, three other toes*, which have grown above the others, and are armed with hooked claws, the largest of which is on the middle toe. It is with these that they scrape the earth, and pierce the ants nests. The nostrils, which are placed very near

he mentions under the name of the *tamandua-guacu* of Brasil, or the *bear which eats the ants* *,

Y 3

p.

near the mouth, are strait, rough, and furnished with hair. They discover the retreats of the ants by the scent. The ears are oblong, or pendulous. The hind feet, as in the bear, are divided into five toes, armed with long crooked claws. The tail, which is long and bushy, terminates in a point, and they use it, like the monkeys, in fixing themselves to the branches of trees. The testes of the males are concealed within the skin. The ants, both large and small, become a prey to these animals, which, in their turn, are used by men as a medicine; *Seba, vol. 1. p. 60. tab. 37. fig. 2.*—From such a description nothing can be learned: To apply it to the ant-eaters, as Linnaeus has done, to give, at the same time, this animal three toes on the fore feet, besides the ordinary three, and to make these grow above the others, are absurdities so glaring, as to throw discredit upon the whole narration.

* *Tamandua-guacu*, of Brasil, or the *bear that eats the ants*. This is the largest species we have ever seen. Marcgrave calls it *Tamandua-guacu*, and Cardan, *ursus formicarius*, or the *bear that eats the ants*. The body is long; the shoulders are broad and high; the head is very long; the muzzle gradually tapers to a point; and the nostrils are large and open: The tongue, which it thrusts out to seize the ants, *about the eight part of a cubit*, terminates in a round button. The ears are long and *pendulous*. The eyes are pretty large, and defended by thick hairs. The muzzle is long, wrinkled, and garnished with hair. The rest of the body is covered with long, thick hairs, similar to hogs bristles, but become fine and woolly near the skin, and their colour is a bright chesnut. The hair on the belly is of a deeper brown. Under the tail, which is long, and terminates in a point, the colour of the hair is a bright yellow. The female, whose figure we have given, has eight paps, three on each side of the belly, and two between the fore feet. Witnesses worthy of credit relate, that the females bring forth, at every litter, as many young as they have paps, in which they resemble the swine, *who never bring forth many at a time, unless they have a great number of paps.*

p. 65. tab. 40. fig. 1. This is vague and equivocal language. I agree, however, with Klein* and Linnaeus, that it may be the true tamandua-guaca, or great ant-eater; but so miserably described

paps. Both the fore and hind feet are larger than those described in fig. 2. of the preceding table. They use for food the largest kinds of ants.

We have in our cabinet *six species of ant-eaters*, who all differ from each other in the figure of the body, head, feet, and claws. The tamandua represented in fig. 2. (*Note. He is here speaking of the ysquiepatl, which differs more from the tamandua than a cat from a dog*) is a fourth part less than the former; its head, ears, and eyes, are also smaller. His fore foot has only a single claw, which is strong and hooked. The hind foot has three toes and three claws. The hair is soft, woolly, and coloured like that of a young hare. The figure of the fifth species of tamandua is the same. The colour of the hair is a pale red on the back, mixed with a silvery white, and a yellowish ash-colour on the belly. This species has four paps, two under the fore and two under the hind legs. (*This species, being of the same figure with that which precedes it, must, therefore, be a species of ysquiepatl, and not of the tamandua.*) The sixth species has a longer muzzle, and ears erect like those of the fox. None of these species have teeth; *Seba, vol. 1. p. 65. tab. 40. fig. 1.*—It is impossible to comprehend what the author says, or what he means by the sixth species. We only perceive that he clearly contradicts himself, when he tell us, that none of these species have teeth, since the ysquiepatl, which is *nominatim* included among the six, has a great number of teeth. From such examples, we may form a judgment of this author and his work. It is a subject of regret, that men who make cabinets of natural objects, are not better informed, and that, to gratify their insignificant vanity, and enhance the value of their collections, they undertake the publication of descriptions, which are always replete with such numerous exaggerations and blunders, that the correction of them would require more time than the authors bestow on the composition of their voluminous works.

* Klein de quadrup. p. 45.

scribed and represented, that Linnaeus* has united, under one species, Seba's first and second animals, namely, that of tab. 37. fig. 2. and that of tab. 40. fig. 1. M. Brisson has considered the last as a distinct species; but I know not whether the establishing of this species be better founded, than the reproach he throws upon M. Klein for confounding it with that of the great ant-eater. The only reproach which M. Klein seems to merit is for adding, to a good description that he has given of this animal, the false remarks of Seba. In fine, the third of these animals, of which we find a figure in Seba, tom. 2. p. 48. tab. 47. fig. 2. is so ill described, that, notwithstanding my confidence in the judgment of M. Linnaeus and Klein, this animal, from Seba's figure and description, can never be referred to the *tamandua-i*, or middle ant-eater. I would beg of them to peruse the description † a second time, and

* Linn. Syst. Nat. p. 51.

† *The little American tamandua, or the ant-eater delineated along with a nest of these insects.* See how it embraces with its fore claws the nest of ants, upon which alone it feeds. Observe its oblong, thin, narrow head, its short ears, its pointed muzzle, that conceals its long slender tongue, with which it catches and swallows the ants, as I propose to show in the following plates, (*no such plates appear in his work.*) The head, legs, feet, tail, and the fore part of the body, are straw-coloured. The hind part of the body is reddish brown. Upon the breast there is a belt of silky hair, which gradually disappears about the middle of the back. The tail is short, almost naked, and curled inward; *Seba, vol. 2. p. 48. tab. 47. fig. 2.*—Note. The last characters in this description agree pretty well with the *tamandua*; but, in general, it is so incorrect, that it determines nothing.

and then form their judgment. Discussions of this kind are always disagreeable; but they often cannot be avoided in details of Natural history. Before describing an object, we must clear it, as far as possible, from all obscurities, and mark the numberless errors that obstruct the road to truth, at which it is often difficult to arrive.

From this critical examination, one thing appears to be certain, that three species of ant-eaters actually exist; that these three are the great, the middle, and the least ant-eater, or the *tamanoir*, the *tamandua*, and the *fourmiller*; and that the fourth species, mentioned by M. Brisson, under the name of the *long-eared ant-eater*, is very doubtful, as well as the other species described by Seba. We have seen the great and the least ant-eater; their skins are in the royal cabinet, and they are very distinct species. But we have never seen the middle kind. Our description of it shall be taken from Piso and Marcgrave, the only authors who ought to be consulted concerning this animal, because all others have copied from them.

As to size of body, the *tamandua*, or middle ant-eater, may be considered as a mean proportional between the great and the least kind. Like the great ant-eater, he has a long muzzle, and four toes on the fore feet; but, like the least kind, his tail, by which he hangs on the branches of trees, is naked at the extremity. Both kinds,
when

when suspended on a branch, balance their bodies, stretch their muzzles towards the hollows they discover in trees, thrust in their long tongues, and quickly retract them, in order to swallow the insects they have collected.

These three animals, which are so different in size and proportions of body, have many common qualities, both in their structure and manners. They all feed upon ants, and plunge their tongues into honey, and other liquid or viscid substances. They readily pick up crumbs of bread, or small morsels of flesh. They are easily tamed. They can subsist a long time without any food. They never swallow all the liquor which they take for drink; for a part of it falls back through the nostrils. They generally sleep during the day, and move about in the night. They run so slowly, that a man may easily overtake them in an open field. Their flesh, though its taste be very disagreeable, is eaten by the savages.

At a distance, the great ant-eater has the appearance of a fox; and, for this reason, some travellers have given him the name of the *American fox*. He has strength sufficient to defend himself against a large dog, or even the *jaguar* or Brazilian cat. When attacked, he at first fights on end, and, like the bear, annoys the enemy with the claws of his fore-feet, which are very terrible weapons. He then lies down on his back, and uses all the four feet; in which situation he is almost invincible, and continues the combat

combat to the last extremity : Even when he kills his enemy, he quits him not for a long time after. He is enabled to resist better than most animals ; because he is covered with long bushy hair, his skin is remarkably thick, his flesh has little sensation, and his principle of life is very tenacious.

All the three ant-eaters are natives of the warm climates of America, as Brasil, Guiana, the country of the Amazones, &c. None of them are to be found in Canada, or the northern regions of the New World, and therefore should have no existence in the Old Continent. Kolbe * and Desmarchais †, however, mention these animals as natives of Africa ; but they seem to have confounded the scaly lizard with the ant-eaters. Perhaps they have been misled by the following passage in Marcgrave : ‘ *Tamandua-guacu, Brasiliensibus, Congensibus (ubi et frequens est) umbulu dictus.*’ If by *Congensibus* Marcgrave meant the natives of Congo, the inference of Kolbe and Desmarchais, that the great ant-eater was found in Africa, would have been just. But Marcgrave certainly never saw this animal in Africa, since he acknowledges, that, even in America, he never saw more than stuffed skins of it. Desmarchais says simply, that the great ant-eater is found both in Africa and America, without adding a single circumstance in proof of the fact.

With

* Descript. du Cap. par Kolbe, tom. 3. p. 43.

† Voyage de Desmarchais, tom. 3. p. 307.

With regard to Kolbe, no dependence can be had on his testimony ; for a man who saw, at the Cape of Good Hope, elks and lynxes perfectly similar to those of Prussia, might also see the ant-eater in that climate. The ant-eaters are never mentioned by any author among the natural productions of Africa and Asia. But all the travellers, and most of the historians of America, take particular notice of these animals. De Lery, de Laët *, le P. d'Abbeville †, Maffé ‡, Faber, Nieremberg ||, and M. de la Condamine §, agree with Piso, Barrere, &c. that the ant-eaters are natives of the warm climates of America. We must, therefore, conclude that Desmarchais and Kolbe have been deceived, and that these animals exist not in the Old Continent.

S U P P L E M E N T.

THE GREAT ANT-EATER.

Dr Maudhuit, a learned naturalist and physician, has sent us from Guiana a well preserved specimen

* Descript. des Indes Occidentales, par Jean Laët, p. 485. 556.

† Mission en l'isle de Maragnon, par le Pere d'Abbeville, p. 248.

‡ Hist. des Indes, par Maffé, traduit par de Pure, p. 71.

|| Euseb. Nieremberg, Hist. Nat. Antverpiæ, p. 190.

§ Voyage de la rivière des Amazones, par M. de la Condamine, p. 167.

specimen of the great ant-eater, which, though precisely the same species with that formerly described, has a shorter muzzle. The distance between the eye and ear is likewise less, and the feet are shorter. On the fore-feet there are four claws; the two middlemost being very large, and the two outermost very small. The hind feet have five black claws. The muzzle, as far as the ears, is covered with short brown hair. About the ears, the hair begins to grow longer; upon the sides of the body, it is two inches and a half in length, and as hard to the touch as that of the wild boar. The colour of the hair is a mixture of deep brown and a dirty white. This animal is three feet eleven inches long.

M. de la Borde, King's physician at Cayenne, has communicated the following observations regarding this animal.

' The ant-eater inhabits the woods of Guiana, where there are two species. The individuals of the largest kind sometimes weigh one hundred pounds. They run more slowly and sluggishly than the hog. They swim across large rivers; and, on these occasions, it is easy to knock them down with a stick. In the woods, they are shot with muskets. They are not very common; and the dogs refuse to hunt them.

' The great ant-eater tears up with his claws the nests of the wood-lice, that are every where to be found on the trees, which he climbs with ease. It is dangerous to come near this animal;

mal; for his claws inflict the most dreadful wounds. He defends himself with success against the most ferocious animals of this Continent, as the jaguars, couguars, &c. whom he tears with his claws, the muscles and tendons of which are very strong. He kills many dogs; and therefore they refuse to hunt him.

The great ant-eater is often seen in the large uncultivated savannahs. He is said to feed upon ants. In his stomach, which is larger than that of a man, I found a vast number of woodlice, that had been recently swallowed. The structure and dimensions of his tongue seem to indicate, that he may likewise feed upon ants. The female brings forth but one young, in holes of trees, near the root; and, at this period, she is dangerous even to men. The flesh of this animal is eaten by the common people of Cayenne; it is black, and has neither fat nor flavour. His skin is thick and hard; and his tongue is nearly of the same conical form with his muzzle.

The great ant-eater, continues M. de la Borde, acquires not his full growth in less than four years. His respiration is performed solely by the nostrils. At the first vertebra which joins the neck to the head, the wind-pipe is very large; but it suddenly contracts, and forms a canal, which is continued, in the horn or trunk that serves the animal for an upper jaw, to the nostrils. This horn is a foot in length,

350 THE GREAT ANT-EATER, &c.

‘ length, being as long, at least, as the rest of the
‘ head. The wind-pipe has no opening into
‘ the mouth; and yet the aperture of the nostrils
‘ is so small, as hardly to admit a common quill.
‘ The eyes are very small, and the animal sees
‘ at a side only. His fat is extremely white.
‘ When he crosses rivers, he carries his long tail
‘ on his back.’

Messrs Aublet and Olivier assure me, that the great ant-eater feeds by means of his tongue only, which is covered with a viscid humour, to which the insects adhere. They add, that his flesh is not bad.

THE MIDDLE ANT-EATER.

The animal here represented, the skin of which is well preserved in the royal cabinet, belongs to the species of *Tamandua* or middle ant-eater. It differs from the *tamanoir*, or great ant-eater, not only in size, but in figure. Its head is proportionally much thicker. The eye is so small that it exceeds not a line in breadth. The ears are round, and fringed above with large black hairs. The body, from the tip of the nose to the origin of the tail, is thirteen inches long, and ten inches high. The hair on the top of the back is fifteen lines long, and that on the belly, which is of a dirty white colour, is of an equal

equal length. The tail, which is only seven inches and a half long, is wholly covered with long yellow hair, and variegated with bands or rings slightly tinged with black.

In all this description, there are only two characters which accord not with that given of the tamandua by Marcgrave. 1. The tail is all garnished with hair; but that of Marcgrave was naked at the extremity. 2. In our tamandua, there are five toes on the fore-feet; in that of Marcgrave there were only four. But, as they agree in every other article, we must conclude the animal, whose figure is here represented, to be a variety of the tamandua, or middle ant-eater, if not precisely the same species.

M. de la Borde seems to point out this animal under the name of the *little tamanoir*.

‘It has,’ says he, ‘whitish hair, about two inches long, and weighs above sixty pounds. It has no teeth; but its claws are very long. Like the former, it feeds during the night, and the female brings forth but one at a time. Its manners are also the same, and it frequents the large forests. Its flesh is very good; but it is more rarely to be met with than the great tamanoir.’

I wish M. de la Borde had given a more particular account of this animal, that all uncertainty with regard to its species might have been removed.

THE

THE LEAST ANT-EATER.

With regard to this animal, M. de la Borde, at the same time, sent me the following remarks.

‘ It has bright reddish hair, and somewhat of a golden colour. It feeds upon ants, which adhere to its long worm-shaped tongue. This animal is not larger than a squirrel. It moves slowly, and is easily taken. Like the sloth, it fixes itself to a staff; and, as it has no desire to disengage itself, it may be carried in this manner wherever we please. It has no cry. We often find these animals adhering to branches by their claws. The females bring forth only one at a time in holes of trees, which they line with leaves. They feed in the night only. Their claws are very dangerous; and they clasp them so close, that it is impossible to loose them. They are not rare; but it is difficult to perceive them on the trees.’

M. Vosmaër has made a very erroneous criticism on what I have said concerning the least ant-eater *.

‘ I must remark,’ says he, ‘ though contrary to the opinion of M. de Buffon, (see above, p. 349.) that last year M. Tulbagh sent me an animal, under the name of *porc de terre*, which is the *myrmecophagus* of Linnaeus; so that Desmar-
chais

* Descript. d’un grand ecureuil volant, p. 6.



Ed. Bell's engr.

GREAT ANTEATER.

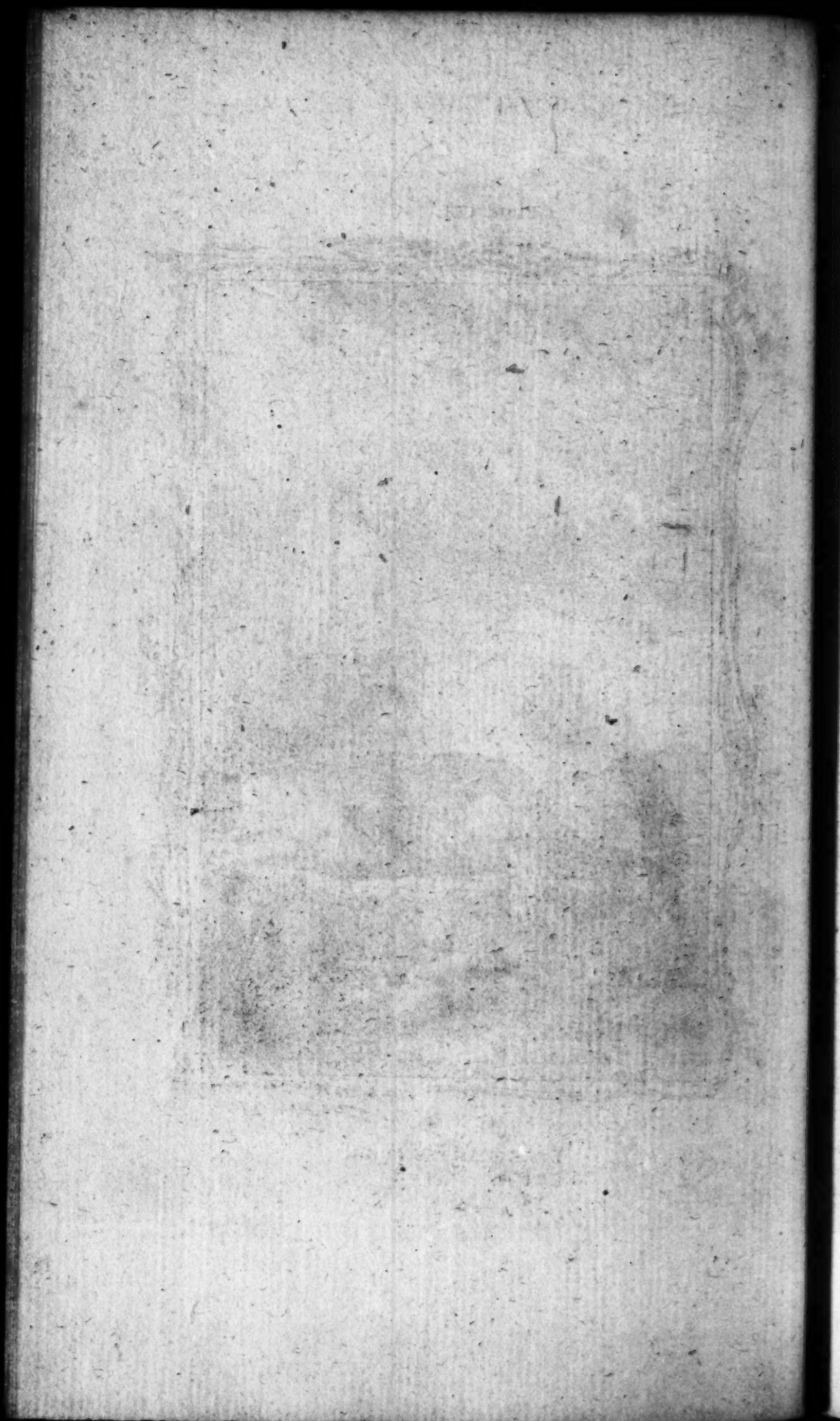


Plate CCL



A. Bell & Co.

LEAST ANT-EATER.

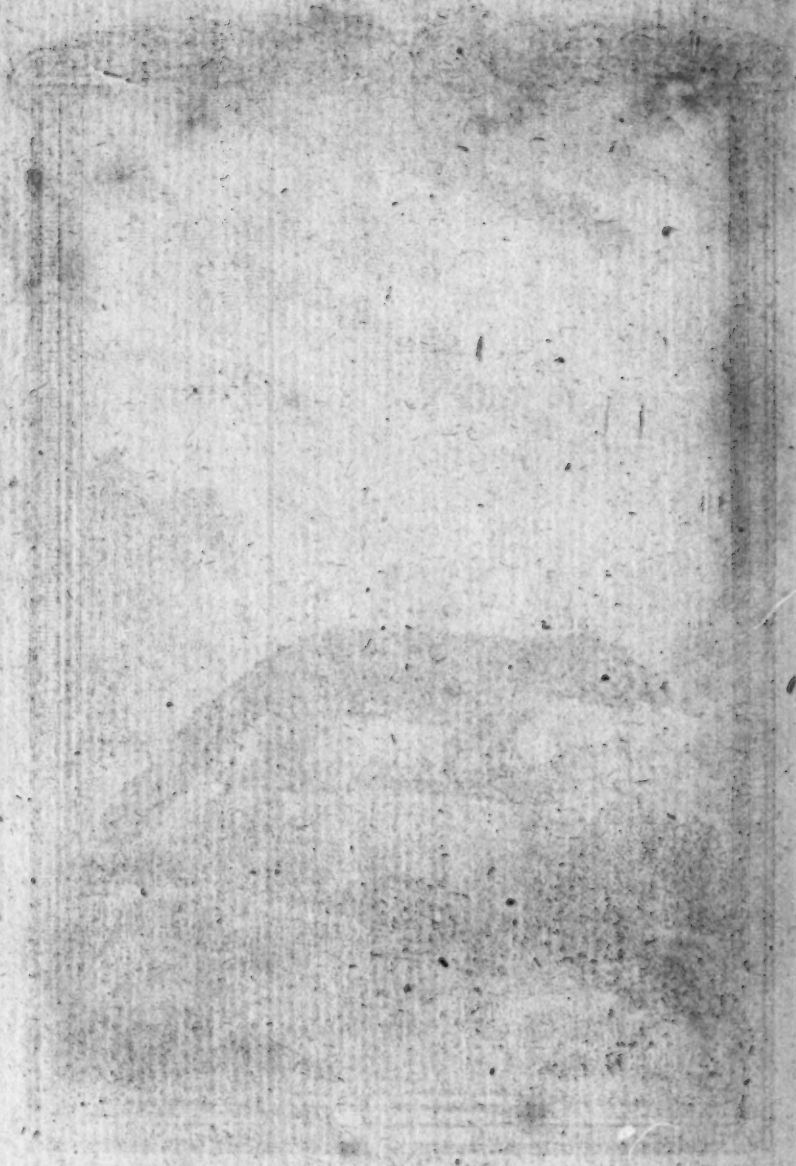


Plate CLII.



A. Bell sculpt.

MIDDLE ANT EATER.

chais and Kolbe were right in maintaining that this animal was found in Africa, as well as in America. If we form a judgment from the specimen sent me, which is preserved in spirit of wine, appears to be new born, and is as large as a good pig, we must conclude the full grown animal to be of a considerable size. The following are its principal characters, as far as they could be remarked in an animal so young.

The muzzle is pretty broad at the point, round, and somewhat compressed above. The ears are very broad, long, thin, pointed, and pendulous. On the fore feet there are four toes; the first and third are of equal length, the second somewhat longer, and the fourth or exterior one a little shorter than the third. The four claws are very long, a little hooked, sharp, and nearly of an equal size. On the hind feet there are five toes, the three intermediate ones being nearly equal in length, and the two exterior much shorter; the claws are smaller, and the two exterior ones are least. The tail, without being long, is thick, and terminates in a point. The two *Myrmecophagi* of Seba, tom. 1. tab. 37. fig. 2. and tab. 40. fig. 1. are certainly the same, and differ only in colour, and the figures given of them are good. This is a particular species, totally different from the *tamandua-guacu* of Marcgrave, or the *tamanoir* of M. de Buffon.

From this passage, it might be thought that I was deceived with regard to the animal represented by Seba, tab. 37. fig. 2. However, I have said precisely the same thing with M. Vosmaër ; for I expressed myself in the following words : ‘ The animal called *Tamandua*, *murmecophage d’Amerique*, by Seba, tom. 1. p. 60. ‘ tab. 37. fig. 2. has no resemblance to any of ‘ the three of which we are here treating.’ Now, the three American animals which I mentioned, were the great, middle, and least ant-eaters. What M. Vosmaër remarks, therefore, contradicts nothing I have advanced ; which amounts to this, that these three animals are peculiar to America, and not to be found in the Old Continent. This language is so precise, that M. Vosmaër can have nothing to oppose to it. If the *Myrmecophagus* of Seba, tab. 37. fig. 2. is found in Africa, it only proves that Seba was deceived when he calls it the American *Myrmecophagus*, but can have no effect upon what I have advanced, and still persist in maintaining, that the three ant-eaters are found in America, and not in Africa.

The SHORT TAILED *, and the LONG TAILED MANIS †.

THESE animals are commonly known by the name of *scaly lizards*. We have rejected this denomination, 1. because it is compounded; 2. because it is ambiguous, and is applied

Z 2

* The back, sides, and upper part of the tail of these animals, are covered with large strong scales. The mouth is small, and the tongue long. They have no teeth.

The short tailed scaly lizard has the back, sides, and legs, covered with blunt scales, and bristles between each. There are five toes on each foot, and the tail is not longer than the body. The ears are not unlike the human. The chin, belly, and inside of the legs are hairy; *Pennant's synops. of quad.* p. 329.

The Indians of the south of Asia call this animal *Pangolin*, or *Panggoeling*. The French who live in the East Indies call it *Lezard ecailleux*, and *Diable de Java*. *Panggoeling*, according to Seba, signifies, in the language of Java, *an animal which rolls itself up like a ball*.

Lacertus Indicus squamosus; *Bontii Java*, p. 60.

Lezard Ecaillé; *Mém. pour servir à l'hist. des animaux*, part. 3. p. 87.

Armadillus squamatus major Ceylanicus, feu *Diabolus Tajovanicus dictus*; *Seba*, tom. 1. p. 88. tab. 53. 54. *Klein quad.* p. 47.

Pholidotus pedibus anticis et posticis pentadactylis, squamis subrotundis; *Briffon. quad.* p. 18.

Manis pedibus pentadactylis; *Linn. Syst. Nat.* p. 52.

† The long tailed scaly lizard, has a slender nose, which, with the head, is smooth. The body, legs, and tail are guarded

356 THE SHORT TAILED MANIS, &c.

plied to both species ; 3. because it is improper, these animals being not only of a different species, but of a different class from the lizards, which are oviparous reptiles ; instead of which, the animals under consideration are viviparous quadrupeds*.

All lizards are entirely covered with a smooth skin, variegated with spots which resemble scales. But the short and long tailed manis have no scales on the throat, breast, and belly. The long-tailed manis, like other quadrupeds, has hair on all the inferior parts of the body ; and the short-tailed manis has, on these parts, a smooth skin only, without hair. The scales which cover the other parts of both these animals adhere not entirely to the skin, but are strongly fixed by their under part only. Like the quills
of

ed by long, sharp pointed, striated scales. The throat and belly are covered with hair. The legs are short. There are four claws on each foot, one of which is very small. The tail tapers a little, but ends blunt. The length, from nose to tail, is fourteen inches and a half, and that of the tail is three feet four inches and a half ; *Pennant's synops. of quad. p. 328.*

The Indian name of this animal is *Phatagin*, or *Phatagen*.

Lacertus squamosus peregrinus ; Clusii Exotic. p. 374.

Scaly lizard ; *Grew's rarities, p. 46.*

Lacerta Indica Yvannae congener ; *Aldrov. de quad. digit. vivipar. p. 667.*

Philodotus pedibus anticis tetradactylis, squamis mucronatis, cauda longissima ; Brisson. quad. p. 19. Note, Both of these animals have five toes, or rather five claws, on each foot.

Manis tetradactyla ; Linn. syst. nat. p. 53.

* The author adopts the East Indian names, *Pangolin*, and *Phatagen*.

of the porcupine, they are moveable, and are elevated or depressed, according to the will of the animals. When irritated, they erect their scales, and particularly when they roll themselves up like a ball. These scales are so large, hard, and poignant, that they repel every animal of prey. They form an armour which wounds as well as resists. The most cruel and famished creatures, as the tiger, panther, &c. endeavour in vain to devour these animals. They trample upon, and toss them about ; but, whenever they attempt to seize them, they receive very dangerous and painful wounds. No animal of prey is able to face, crush, or suffocate them, although it loads them with its whole weight. The fox is afraid of the hedgehog when rolled up ; but he forces it to extend, by trampling on it with his feet. As soon as the head appears, he seizes it by the snout, and thus accomplishes his purpose. But, of all animals, without excepting the porcupine, the armour of the manis is the most offensive. When these animals contract their bodies, and present their armour, they brave the fury of all their enemies. Besides, when rolled up, these animals assume not, like the hedgehog, a globular figure : Their body, in contracting, takes the form of a clue ; but their long thick tail remains without, and serves as a ring or belt to the body. This exterior part, by which it would appear the animals might be seized, defends itself ; for it is

furnished, both above and below, with scales as hard and sharp as those which cover the body; and, as it is convex above and flat below, and has nearly the figure of a half pyramid, the angular sides are covered with sharp erected scales; so that the tail seems to be still more carefully defended than the body, the inferior parts of which are deprived of scales.

The short tailed manis is larger than the long tailed kind. His fore feet are covered with scales to their extremity; but the feet of the long tailed species, and even a part of the fore legs, are covered with hair only. The scales of the former are larger, thicker, more convex, and less chamfered than those of the latter, which are armed with three sharp points, while those of the short tailed manis are not pointed, but uniformly sharp. The long tailed manis has hair on the inferior parts of the body: The short tailed kind has no hair under the body; but, between the scales which cover the back, there are some hairs as thick and long as hogs bristles, which are wanting in the long tailed species. These are all the essential distinctions that we have observed by examining the stuffed skins of both these animals, which differ so much from all other quadrupeds, that they have been regarded as a kind of monsters. The differences we have pointed out, being general and constant, authorise us to conclude the short and long tailed manis to be distinct species. We recognised these

these relations and differences not only by inspecting three subjects, but likewise by perusing all the remarks of travellers and naturalists.

The short tailed manis, when full grown, is from six to eight feet long, including the tail, which is nearly the length of the body, but appears to be proportionally shorter while the animal is young; the scales are also smaller and thinner, and of a paler colour; but, in the adult animal, their colour becomes deeper, and they acquire such a degree of hardness as to resist a musket ball. The long tailed manis, as formerly remarked, is much less than the short tailed species. Both of them have some relation to the great and middle ant-eaters; for they feed upon ants, have very long tongues, a narrow mouth, without any apparent teeth, very long bodies and tails, feet and toes nearly of the same size and figure, though different in number, both species of manis having five toes to each foot, while the ant-eaters have only four on the fore feet. The latter are covered with hair, and the former with scales; neither are they natives of the same Continent. The ant-eaters are found only in America, and the two species of manis in the East Indies and Africa, where they are called *Quogelo** by the Negroes, who eat the flesh of these animals,

* We find in the woods a quadruped which the Negroes call *quogelo*. From the neck, to the extremity of the tail, it is covered with sharp scales, resembling the leaves of the artichoke. They are close, and so thick and strong as to defend it

animals, which they reckon delicate and wholesome, and use their scales for several purposes. In fine, these creatures have nothing disgusting about them but their figure. They are gentle and innocent, feeding only on insects. They run slowly, and cannot escape from a man, but by concealing themselves in holes of rocks, or in those they dig in the earth, where the females bring forth their young. They are two extraordinary species, not numerous, and very useless. The oddness of their form seems to be intended to constitute the last shade between the figure of quadrupeds and that of reptiles.

T H E

it against the claws and teeth of the most rapacious animals. It is perpetually chased, and easily overtaken, by the tigers and leopards. But, as its claws and mouth would be a feeble defence against the dreadful tusks and talons of these animals, Nature has taught it to roll itself up like a ball, by folding its tail under the belly, and contracting its body in such a manner as to present on all sides the sharp points of its scales. The tiger or leopard, when they turn the creature too rudely with their paws, receive such wounds as oblige them to retire. The Negroes kill it with battons, sell the skin to the Whites, and eat the flesh, which they say is white and delicate. Its tongue is enormously long, and covered with a viscid liquor. It goes in quest of ants nests, and the haunts of insects; extends its tongue, which it either pushes into their holes, or lays it flat upon the places where they pass. These insects, attracted by the odour, quickly run toward the tongue, remain entangled in the viscid liquor; and, when the tongue is properly loaded with them, the animal retracts it, and devours them. This creature is not mischievous. He never attacks any person, but, provided he can find a sufficient quantity of ants, is perfectly contented. The largest of this species that has been observed, is eight feet long, comprehending the tail, which is four feet; *Voyage de Desmarchais*, tom. I. p. 200.

Plate CLIII.



A. B. S. del.

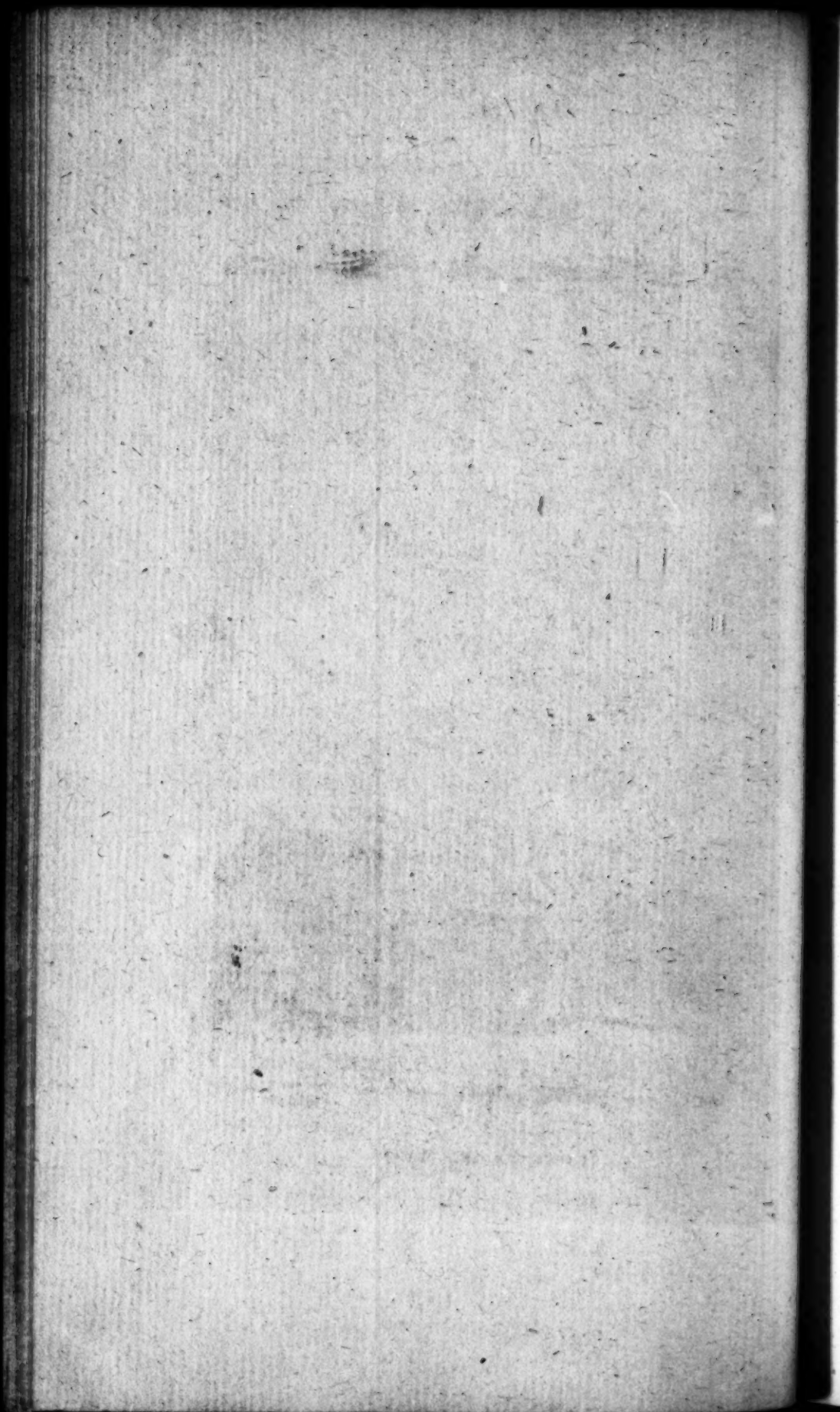
SHORT-TAILED MANTIS.



Plate. CLIV.



LONG TAILED MANIS.



THE ARMADILLO.

WHEN a quadruped is mentioned, the very name seems to convey the idea of an animal covered with hair. In the same manner, when we speak of a bird or a fish, feathers and scales present themselves to the imagination, and appear to be inseparable attributes of these beings. Nature, however, as if she intended to withdraw herself from all method, and to elude our most general views, contradicts our ideas and denominations, knows nothing of our arbitrary characters, and astonishes us still more by her exceptions than by her laws. Quadrupeds, which should be regarded as constituting the first class of animated nature, and are, next to man, the most conspicuous creatures in this world, are, nevertheless, neither superior in every respect, nor separated, by permanent characters or attributes, from all other beings. The first character, that of having four feet, and from which their name is derived, is found among the lizards, frogs, &c. which differ so much from quadrupeds in every other article, that they have, with propriety, been thrown into a distinct class. The second general property, that of being viviparous, belongs not exclusively to quadrupeds, but is common to them and the cetaceous animals.

In

In fine, the third attribute, that of being covered with hair, which appears to be the least equivocal, because it is the most conspicuous, exists not in several species which cannot be retrenched from the order of quadrupeds, since, with the exception of this character alone, their resemblance to each other is complete: And, as these seeming exceptions of Nature are, in reality, but the shades she employs to connect beings of the most remote kinds, we ought to seize these singular relations as often as they present themselves. The armadillos, instead of hair, are covered, like the turtles, the lobsters, &c. with a solid crust. The manis is armed with scales similar to those of fishes. The porcupine carries a kind of prickly feathers, without vanes, but having quills like those of birds. Thus, in the class of quadrupeds alone, and in the most constant and apparent character of these animals, that of being covered with hair, Nature varies, by making them approach the three very different classes of birds, fishes, and the crustaceous tribes. Hence we ought never to judge of the nature of beings by a single character; for it will always be imperfect and fallacious. Even two or three characters, though extremely general, are often insufficient; and, as I have frequently remarked, it is only by the union of all the attributes, and an enumeration of all the characters, that a judgment can be formed concerning the permanent and essential qualities of the productions

ductions of Nature. Accurate descriptions, without any attempt toward definitions, a more scrupulous examination of the differences than of the similarities, a particular attention to the exceptions, and even to the slightest shades, are the true guides, and, I will venture to affirm, the only means we possess of investigating Nature. If the time lost in framing definitions and methodical arrangements, had been employed in making good descriptions, we should not, at this day, have found Natural History in her infancy, but should have had less difficulty in removing her swaddling cloths and her toys, and, perhaps, might have advanced her age; for we should have written more for science, and less against error.

But to return to our subject. Among viviparous quadrupeds, as we have seen, there are several species of animals which are not covered with hair. The armadillos alone constitute an entire genus, which includes a number of distinct species, and all of them are covered with a crust resembling bone. This crust covers the head, neck, back, flanks, rump, and extends to the extremity of the tail. The crust itself is also covered with a thin, smooth, transparent skin. The only parts to which this crust extends not, are the throat, the breast, and the belly, which are covered with a granulated skin, like that of a plumed hen; and, upon an accurate inspection of these parts, we discover, in different places,

places, the rudiments of scales, of the same substance with the crust. Hence the skin of these animals, even where it is most flexible, has a tendency to become osseous; but the ossification is completed in those places only where the skin is thickest, as on the superior and external parts of the body, and on the limbs. The crust consists not of one piece, like that of the turtle, but is divided into several bands, connected to each other by membranes, which allow a certain degree of movement to this coat of mail. The number of these bands depends not, as has been imagined, on the age of the animal. The new born and the adult armadillo have the same number of bands, as appears by comparing the young with the old; and, though we cannot be certain that those which have more or fewer bands never intermix or produce, it is at least very probable, since the difference in the number of moveable bands is constant, that they are either distinct species, or permanent varieties, occasioned by the influence of different climates. In this uncertainty, which time alone can remove, we have chosen to treat of all the armadillos under one article, enumerating, at the same time, each kind as if it were a particular species.

Le Pere d'Abbeville * appears to have first distinguished the armadillos by different names, which have been adopted by most subsequent authors,

* Mission au Maragnon, par le Pere d'Abbeville, p. 247,

authors. He has pointed out pretty clearly six species : 1. The twelve-banded armadillo, or *kabassou*. 2. The eight-banded, or *tatouète*. 3. The six-banded, or *encuberto* of Marcgrave. 4. The three-banded, or *tatu-apara*. 5. The eighteen-banded, or *cirquinçon*. 6. The nine-banded, or *cachichame*. The different species have been confounded by other travellers. But we have occasion to borrow the descriptions of two kinds only, having seen the other four.

All the armadillos, except the eighteen-banded, have two bony shields, one on the shoulders, another on the rump. Each of these consists of one solid piece. But the cuirass, which is likewise osseous, and covers the body, is divided transversely into more or fewer moveable bands, connected by a flexible skin. But the armadillo with eighteen bands has one shield only, which is upon his shoulders. The rump, instead of a shield, is covered with moveable bands, similar to those above mentioned. We shall now describe each species particularly, according to the number of bands.

THE

THE THREE BANDED ARMADILLO *.

Clusius is the first author who described this animal ; and, though his description was taken from a drawing only, it is easy to perceive, from the remarkable characters of having three moveable bands on the back, and a short tail, that it is the same species of which Marcgrave has given a good description, under the name of *Tatu apara*. The head is oblong, and almost pyramidal ; the eyes are small, the ears short and rounded, and the top of the head is covered with a helmet consisting of one piece. On all the feet there are five toes. The two middle claws of the fore feet are very large, the two lateral ones

* It has short, but broad rounded ears. The crust on the head, back, and rump, is divided into elegant pentangular, tuberculated segments. There are three bands in the middle, five toes on each foot, and the tail is short ; *Pennant's synops. of quad. p. 323.*

Armادillo, seu tatu genus alterum ; *Clusii Exot. p. 109.*

Tatu-apara ; *Marcg. p. 232. Raii synops. quad. p. 234.*

Tatu seu armadillo ; *Pison. hist. nat. Brasil. p. 100.*

Tatu seu armadillo orientalis, lorica ossea toto corpore tectus ; *Seba, tom 1. p. 62. tab. 38. fig. 2. et 3. Note.* This animal is found in America, and not in the East Indies.

Tatus Gefneri. Tatu apara Marcgravii ; *Barrere, hist. Franc. Equinox. p. 163.*

Dasyppus tricinclus, cingulis tribus, pedibus pentadactylis ; *Linn. Syst. Nat. p. 53.*

Cataphractus scutis duobus, cingulis tribus ; *Briffon. quad. p. 24.*

ones smaller, and the fifth, or exterior one, is the least. The claws of the hind feet are shorter and more equal. The tail exceeds not two inches in length, and is wholly covered with a shell or crust. The body is a foot long, and about eight inches over at the broadest part. The back, or cuirass, is divided into four joints, and composed of three transverse moveable bands, by which the animal is enabled to bend its body and to roll itself up like a ball. The skin which forms the joints is very flexible. The shields which cover the shoulders and rump consist of pentangular pieces, very equally ranged. The three moveable bands between the two shields are composed of square or oblong pieces, and on each piece there is a number of lenticular scales of a yellowish white colour. Marcgrave adds, that, when the creature lies down to sleep, or when touched by any person, he gathers his feet together, puts his head below his belly, and makes the whole body so perfectly round, that he has more the appearance of a sea-shell than of a land animal. This contraction is effected by means of two large muscles on the sides of the body; and it is with difficulty that the strongest man can force an extension with his hands. Piso and Ray have added nothing to Marcgrave's description. But it is singular, that Seba, who has given us a figure and description nearly the same with those of Marcgrave, should not only not mention this author, but assert, with confidence,

dence, ' that this animal is unknown to the naturalists ; that it is extremely rare ; that it is ' found in the most remote countries of the East Indies *, ' &c. whilst, in fact, this Brazilian armadillo is excellently described by Marcgrave, and the species as common as any other, not indeed in the East Indies, but in America, where it is very frequent. The only real difference between the description of Seba and that of Marcgrave is, that the latter gives the animal five toes to each foot, and the former only four. One of them must be wrong ; for they both evidently describe the same animal.

Fabius Columna † has described and given figures of the dried crust of an armadillo, contracted in the form of a ball, which appears to have had four moveable bands. But, as this author was totally ignorant of the animal whose skin or shell he describes ; as he knew not the very name of the *armadillo*, though mentioned by Belon more than fifty years before, but gave it the compound appellation of *Cheloniscus* ; besides, as he acknowledges that the crust he describes had been pasted together, and that some pieces were wanting, we have no proper authority to pronounce,

* Hunc remotissimi et maxime versus orientem siti Indiae loci proferunt. ——— Animal hocce rarum admodum et hand vulgare est, nec ejus mentionem ab ullo autorum factam reperimus, &c. ; *Seba*, vol. 1. p. 62.

† Aquatil. et terrest. animal. Obs. Fab. Columna auctore, p. 15. tab. 16. fig. 1. 2. 3.

pronounce, as our modern nomenclators have done *, that an armadillo with four moveable bands has an existence in nature, especially as no notices have been communicated by any other naturalist, concerning this animal, since the imperfect and suspicious account given by Fabius Columna in the year 1606. — If it did exist, it would certainly have found its way into some of our cabinets, or been observed by travellers.

THE SIX-BANDED ARMADILLO †.

This armadillo is larger than the former. The top of the head, the neck, body, limbs, and tail, are covered with a very hard osseous crust,

Vol. V.

A a a

composed

* *Dasyus quadricinctus*, cingulis quatuor ; *Linn. syst. nat.*

p. 54.

† *Cataphractus scutis duobus*, cingulis quatuor ; *Brisson. regn. anim. p. 39.*

† The crust of the head, shoulders, and rump, is formed of angular pieces. It has six bands on the back, between which, and also on the neck and belly, are a few scattered hairs. The tail is not the length of the body, very thick at the base, and tapers to a point. There are five toes on each foot ; *Pennant's synopsis.*

Tatou ; *Obs. de Belon, p. 211.* Though Belon makes no mention of the number of bands, this tatou, from inspection of the figure, is the six-banded species.

Tatus, seu Echinus Brasiliensis ; *Aldrov. de quad. digit. vivip. p. 478. fig. p. 480.*

Tatu et tatupeba Brasilianis. Encuberto Lusitanis. In dorso septem sunt divisurae, cute fusca intermedia ; *Maregr. hist.*

composed of pretty large pieces, most elegantly placed. Each of the two shields on the shoulders and rump consists of one piece. There is, indeed, beyond the shield on the shoulder, and near the head, a moveable band which enables the animal to bend his neck. The shield on the shoulders consists of five parallel rows, which are composed of pieces that have five or six angles, with a kind of oval figure in each. The cuirass on the back, or the part between the two shields, is divided into six bands, connected to each other, and to the shields, by seven junctures of a thick flexible skin. These bands consist of large square or oblong pieces. On the skin of the joints there are several whitish hairs, similar to those on the throat, breast, and belly. All the inferior parts of the body, instead of a hard crust, are covered with a granulated skin. The shield on the rump has a fringed border, the mosaic work of which resembles that of the moveable bands; the rest is composed of pieces very similar to those of the shield on the shoulders. The crust of the head is long, broad, and consists of one piece, as far as the moveable band on the neck. The muzzle

hist. Brasil. p. 231. Note. The words *divisurae*, as well as *juncturae* and *commisurae*, signify the intervals between the bands, and not the bands themselves. Seven intervals are necessary to make six bands.

Tatu, five armadillo prima Maregravii; *Raii synopsis. quad. p. 233.*

Dasyus sexcinctus, cingulis senis, pedibus pentadactylis; *Linn. syst. nat. p. 54.*

Cataphractus scutis duobus, cingulis sex; *Briffon. quad. p. 25.*

muzzle is sharp, the eyes small and sunk, and the tongue narrow and pointed. The ears, which are naked, having neither hair nor crust, are short and brown, like the skin of the dorsal junctures. There are eighteen teeth in each jaw, and five toes on each foot, with pretty long, rounded, and rather narrow than broad claws. The head and muzzle nearly resemble those of a pig. The tail is thick at its origin, and gradually tapers toward the point, where it is very thin, and rounded. The colour of the body is a reddish yellow. The animal is commonly plump and fat; and the penis of the male is very conspicuous. He digs the earth with great ease by the assistance of his snout and claws. He lives in his burrow during the day, and comes out in the night only to search for food. He drinks often, and feeds upon fruits, roots, insects, and birds, when he can seize them.

THE EIGHT-BANDED ARMADILLO *.

This armadillo is not so large as the six-banded species. The head is small, the muzzle sharp, the ears erect, and pretty long, and the tail is proportionably

A a 2

proportionably

* This armadillo has upright ears, two inches long, small black eyes, eight bands on the sides, four toes on the forefeet, and five on the hind. The length, from nose to tail, is about

proportionably longer, and the limbs shorter than those of the six-banded armadillo. The eyes are small and black ; there are four toes on the fore, and five on the hind feet ; the head is covered with a helmet, the shoulders and rump with two shields, and the body with a cuirass composed of eight moveable bands connected to each other and to the two shields by nine junctures of flexible skin. The tail is likewise covered with eight moveable rings of crust, and nine joints of flexible skin. The colour of the cuirass on the back is an iron-gray, and the flanks and tail are of a whitish gray mixed with spots of iron-gray. The belly is covered with a whitish, granulated skin, interspersed with some hairs. The head of the individual described by Marcgrave was three inches long, the ears nearly two, the legs about three, the two middle toes of the fore feet one inch, and the claws half

about ten inches, and that of the tail nine ; *Pennant's synops. of quad.* p. 325.

Tatus ; *Gesner. hist. quad.* p. 935.

Ayotochtli ; *Hernand. Mex.* p. 314.

Tatu seu armadillo ; *Clusii Exotic.* p. 330.

Tatou ; *Descript. des Indes Occident. par Laët.* p. 486.

Tatuete Brasiliensibus, Verdadeiro Lusitanis ; *Marcgr. hist. Brasil.* p. 231. *Raii synops. quad.* p. 233.

Tatou ou armadille ; *Hist. Gen. des Antilles, par le Père du Tertre, tom. 2.* p. 298.

Cataphractus scutis duobus, cingulis octo ; *Briffon. quad.* p. 26.

Dasyus Septemcinctus, cingulis septenis, palmis tetradactylis, plantis pentadactylis ; *Linn. syst. nat.* p. 54. *Amoen. Acad. tom. 1.* p. 560. *Note.* This animal has eight bands,

half an inch. The length of the body, from the neck to the origin of the tail, was seven inches, and that of the tail nine. The crust of the shields was interspersed with prominent white spots of the size of lentils. The moveable bands were marked with triangular figures. This crust is not very hard; for the smallest shot pierces it and kills the animal, whose flesh is white, and extremely delicate.

THE NINE-BANDED ARMADILLO *.

Nieremberg's description of this animal is extremely imperfect; those of Wormius and Grew are much better. Wormius's individual was an

A a 3 adult,

* This species has long ears. The crust on the shoulders and rump are marked with hexangular figures. There are nine bands on the sides, distinguished by transverse cuneiform marks. The breast and belly are covered with long hairs. There are four toes on the fore feet, and five on the hind. The tail is long and taper. The length of the whole animal is three feet; *Pennant's synopsis*.

Armadillo; *Worm. Mus. p. 335*.

Tatu porcinus, Schildverkel; *Klein. quad. p. 48*.

The pig-headed armadillo; *Grew's varieties, p. 18. Raii synopsis quad. p. 233*.

Tatou ou Armadillo; *Nouv. voy. aux isles de l'Amerique, tom. 2. p. 387*.

Tatu seu Armadillo Americanus; *Seba, tom. 1. p. 45. tab. 29. fig. 1. Note*. Seba, in his description, mentions ten bands, though there are only nine in the figure.

Cachicame, Cachicamo, Atuco, che de chuca, &c. the Indian

adult, and one of the largest of the species ; that of Grew was younger and smaller. We shall only give their descriptions as far as they correspond with our own specimen. Besides, it is probable that the nine-banded armadillo is not a distinct species from the eight-banded ; for, in every other respect, they seem to have a perfect resemblance to each other. We have two eight-banded armadillos, which are dried, and appear to be males ; and we have seven or eight with nine bands ; one of them, which is entire, is a female, the others are so disfigured in drying, that the sex is not distinguishable. It would appear, therefore, that the eight-banded is the male, and the nine-banded the female. This is only a conjecture, which I mention here, because, in the following article, we shall see two armadillos, one of which has more rows on the rump-shield than the other, and yet their resemblance is so great, that this difference may depend solely on sex ; for it is not improbable, that a greater number of rows and of moveable bands may be necessary for facilitating the gestation and delivery of the females.

In

dian names ; *Hist. Nat. de l'Orénoque, par Gumilla, tom. 3. p. 225.*

Datypus novemcinctus, cingulis novem, palmis tetradactylis, plantis pentadactylis ; Linn. syst. nat. p. 54.

Cataphraetus scutis duobus, cingulis novem ; Brisson. quad. p. 27.

American armadillo ; *Phil. Transf. vol. 57. tab. 7.*

Armadillo feu Aiotochtli ; *Nieremberg. hist. nat. Peregr. p. 158.*

In the individual described by Wormius, the head was five inches long, from the end of the muzzle to the ears, and eighteen inches from the ears to the origin of the tail, which last was a foot in length, and composed of twelve rings. In an individual of the same species described by Grew, the head was three inches, the body seven and a half, and the tail eleven. The proportions of the head and body correspond very well; but the difference in the tail is too considerable; and, it is probable, that, in Wormius's individual, the tail had been broken, for it ought to have exceeded a foot in length. As in this species the tail tapers to a point as small as an awl, and is at the same time very brittle, it is rare to preserve a specimen with the tail entire, as in that described by Grew.

THE TWELVE-BANDED ARMADILLO*.

This animal seems to be the largest of the armadillo kind. Its head is thicker and broader, and its muzzle not so slender as those of the

* This armadillo has broad upright ears. The crust on the shoulders is marked with oblong pieces, and that of the rump with hexangular ones. It has twelve bands on the sides, five toes, with very large claws, on the fore feet, and five lesser on the hind. The tail is shorter than the body, and there are some scattered hairs on the body; *Pennant's Synops. of quad. p. 326.*

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the other species. The legs and feet are also thicker, and the tail has no crust, a peculiarity which sufficiently distinguishes it from all the others. It has five toes on all the feet, and twelve distinct moveable bands. The shield on the shoulders consists of four or five rows only, each of which is composed of pretty large quadrangular pieces. The moveable bands are likewise composed of large and almost square pieces. Those which compose the rump shield are nearly similar to those on the shoulders. The helmet on the head consists of large, irregular pieces. Between the joints of the moveable bands, and in other parts of the armour, there are some hairs, like hog's bristles. Upon the breast, belly, legs, and tail, we perceive the rudiments of scales, which are round, hard, and polished, like the rest of the crust, and, round these, are small tufts of hair. The pieces which compose the helmet, the two shields, and the cuirass, being proportionably larger and fewer in number in the twelve banded than in the other armadillos, entitle us to conclude that it is the largest of the kind.

Tatu five armadillo *Africanus*; *Seba*, tom. 1. p. 47. tab. 30. fig. 3. 4. *Note.* This armadillo, like all the other species, is a native of America, and not of *Africa*.

Cataphractus scutis duobus, cingulis duodecim; *Brissou*. quad. p. 27.

Tatus major moschum redolens. Tatuete Brasiliensibus, Marcgravii. Tatu-kabassou; *Barrère*, *Hist. Franc. equinox.* p. 163.

Kabassou is the name given to this species by the natives of Cayenne.

kind. In that represented in the figure, the head was seven inches long, and the body twenty-one. But we are uncertain whether that represented in the former plate belongs to the same species. They are similar in many respects, particularly in having twelve moveable bands. But they likewise differ in so many articles, that it is perhaps rash to ascribe these differences to sex alone.

THE EIGHTEEN BANDED ARMADILLO *.

Mr Grew first described this animal from a skin preserved in the cabinet of the Royal Society. All the other armadillos have two shields, one on the shoulders, and another on the rump. But the eighteen banded species has only one shield, which is upon the shoulders. It has obtained the name of the *weasel armadillo*, because
its

* This species has a very slender head, and small erect ears. The crust on the shoulders and rump consists of square pieces. There are five toes on each foot. The length, from nose to tail, is about fifteen inches, and that of the tail five and a half; *Pennant's Synops. of quad. p. 327.*

Cirquincon or *Circquinchum*, the name commonly given to the armadillos in New Spain.

Tatou ouinchum; *d'Abbeville Missions au Maragnon, p. 248.*

The weasel-headed armadillo; *Grew's rarities, p. 19.*

Tatu mustelinus; *Raii synops. quad. p. 225.*

Dasyus uncinatus, tegmine tripartito, pedibus pentadactylis; *Linn. syst. nat. p. 53.*

Cataphractus scuto unico, cingulis octodecim; *Briffon. quad. p. 23.*

its head resembles that of the weasel. From Grew's description of this animal, we find that the body was about ten inches long, the head three, and the tail five. The legs were from two to three inches in length; the forehead was large and flat; the eyes were small, and the ears an inch long. It had five toes on each foot, and large claws, of an inch long, on the three middle toes, the others being smaller. The armour of the head and that of the legs were composed of round scales, about a quarter of an inch in diameter. The armour of the neck consisted of one piece, formed of small square scales. The shield on the shoulders consisted also of one piece, composed of several rows of similar small square scales. These rows on the shield, in this as well as in all the other species, are continuous, and adhere by a symphysis. The rest of the body, from the shield on the shoulders to the tail, is covered with moveable bands separated from each other by a flexible skin. These bands are eighteen in number. The anterior ones are largest, and composed of small square and oblong pieces. The posterior consist of round and square pieces; and the extremity of the armour, near the tail, is of a parabolic figure. The first half of the tail is covered with six rings, composed of small square pieces; and the second half, as far as the point, is covered with irregular scales. The breast, the belly, and the ears, are naked, as in the other species. Of all the armadillos,

madillos, from the moveable bands which extend to the tail, it should appear that this species has the power of contracting and rolling itself up like a ball with the greatest ease.

We have taken this description, as well as Mr Ray, from Grew. M. Brisson has also followed Mr Ray, and given a good description of this animal, which he calls simply the *armadillo*. But it is singular, that Linnaeus, though he had the descriptions of Grew and Ray before his eyes, should mention this same animal as having but one band*, when it has no less than eighteen. This notion proceeds from a blunder as evident as that of mistaking the *tatu*, *seu armadillo Africanus* of Seba, for the *tatu mustelinus* of Grew, which, even from the description of these authors, are very different animals. It is equally certain, that the animal described by Grew is a real existing species, as the existence of that of Seba, at least as he describes it, is doubtful. In his estimation, this African armadillo has the whole armour of its body divided into three parts†. If this were true, instead of many bands, the back and sides would be covered with one piece bounded by the shields on the shoulders and rump. This passage is the foundation of Linnaeus's error, who

* *Dasypus uncinatus*, tegmine tripartito, pedibus pentadactylis; *Linn. Syst. Nat. p. 53.*

† Scutum osseum toto incumbens corpori tripartitum est; *Seba, tom. 1. p. 47.*

who calls the animal *Dasyus uncinatus*, tegmine tripartito.

All the armadillos are natives of America. Before the discovery of the New World, they were totally unknown. They are never mentioned by the ancients; modern travellers uniformly speak of them as animals peculiar to Mexico, Brasil, Guiana, &c. and no person ever pretends to have seen any of the species either in Asia or Africa. Some voyagers have indeed confounded the armadillos of America with the manis, or scaly lizard, of the East Indies. Others have imagined that they existed on the West coasts of Africa, because they have sometimes been transported from Brasil to Guiney. Belon *, who wrote more than two centuries ago, and is the first who gave a description and figure of an armadillo from a skin he had seen in Turkey, tells us, that it came from the
New

* " With regard to the animal I formerly mentioned under the name of *tatou*, it is always brought from Guiney and the New World; and, though it is not taken notice of by the ancients, I have given a figure of it.

" Nature has armed this creature with a hard crust and large scales, like a corslet, by which means the inwards and flesh are easily taken out, without injuring its natural figure. From these circumstances, it may be carried to any distance, and, accordingly, it is not uncommon in our cabinets. It may be called the Brasilian hedgehog; for it retires into its scales, as a hedgehog does into his bristles. It exceeds not the size of a middling pig. It is indeed a species of hog, having the same legs, feet, and muzzle. It has been seen alive in France, and it feeds upon grain and fruits;" *Observ. de Belon*, p. 211.

New Continent. Oviedo *, De Lery †, Gomara ‡, Thevet ||, Antoine Herrera §, P. d'Abbeville **, François Ximenes, Stadenius ††, Monard ††, Joseph Acoſta |||, de Laët §§, and all the modern historians, mention these animals as natives of South America. Of all the writers I have quoted, Piso alone has advanced, but without any authority, that the armadillos are found in the East Indies ***, as well as in America. He has probably confounded the scaly lizards with the armadillos. The former are called *armadillos* by the Spaniards. This error has been adopted by our nomenclators and describers of cabinets, who have not only admitted the armadillos into the East Indies, but into Africa, though none of them ever existed in those parts
of

* Oviedo, Summarium Ind. Occid. cap. 22.

† Hist. d'un voyage fait en la terre du Brasil, par Jean de Lery, p. 154.

‡ Gomara; Hist. Mexican. &c.

|| Singularités de la France Antarctique, par Thevet, chap.

54.

§ Descript. des Indes Occident. par Ant. de Herrera, p. 252.

** Mission en l'isle de Maragnon, par le P. C. d'Abbeville, Capucin, p. 248.

†† Joann. Staden. Res gestae in Brasilia, &c.

†† Nicolai Monardi, Simplicium Medic. hist. p. 330.

||| Hist. nat. des Indes, par Joseph Acoſta, p. 198.

§§ Descript. des Indes Occident. par Jean Laët, chap. 5. p. 485. et 486. et chap. 15. p. 556.

*** Cum in Occidentalis non solum, sed et Orientalis Indiae partibus frequens adeo sit hoc inusitatae conformationis animal, non mirum si vel nomine, vel magnitudine, figura quoque subinde variet; *Pison. hist. nat. Brasil. p. 100.*

of the world, except such as were transported from America.

The climate and country of these animals, therefore, are not equivocal: But it is more difficult to determine the size of each kind. With this view, we have compared the skins of a great number preserved in the royal and other cabinets: We have also compared all the descriptions of authors with our own, without being able to draw any certain conclusion. It only appears, that the twelve and six banded armadillos are the largest, and that the three, eight, nine, and eighteen banded species are the least. The head of the larger kinds is more solid and harder than that of the smaller; the pieces of which it is composed are larger and fewer in number; the moveable bands encroach less upon each other; and the skin and flesh are harder, and not so good. Piso says, that the flesh of the six banded armadillo is not eatable *; and Nieremberg assures us that it is noxious †. Barrere tells us, that the twelve banded armadillo has a strong odour of musk. All authors agree, that the flesh of the three banded, and particularly that of the eight banded species, is as good as that of a pig.

They

* Prima et maxima (*species*) tatupeba, cujus descriptioni supersedeo, utpote non edulis; *Pison. hist. nat. Brasil. p. 100.*

† Quaedam innoxia et gratissimi alimenti sunt, alia noxia et venenata, ut vomitu ac flatu alvi sincopem inducant. —

Distinguuntur testarum seu laminarum numero: Innoxia or-
tonis, noxia senis constant; *Nieremberg, hist. nat. Peregr. p.*

They likewise remark, that all the small kinds frequent the plains and marshes; and that the largest species are found in dry and elevated places only*.

All these animals have the faculty of contracting their bodies in the form of a ball with more or less facility. When contracted, the defect of their armour is most conspicuous in those which have fewest moveable bands. In this situation, the three banded species presents two large voids between the shields and the armour of the back. None of them can assume a form so perfectly round as the hedgehog; they have rather the figure of a globe very much flattened at the poles.

The singular crust with which they are covered is a real bone, composed of small contiguous pieces, which, without being moveable or articulated, except at the joints of the bands, are united by a symphysis, and may all be separated from each other when heated in a fire. When the animal is alive, these small pieces, both in the shields and moveable bands †, obey,

* In the woods of Oronook and Guiana, there are armadillos four times larger than those of the plains; *Hist. nat. de l'Orenoque, par Gumilla, tom. 2. p. 7.*

† "The nine-banded armadillo is very sensible. When his scales are pressed, he complains, and rolls himself up like a ball. I remarked, that all the rows, beside the movement by which they joint into each other, have another along the spine of the back, which enables them to extend and enlarge themselves," &c.; *Nouv. voy. aux isles de l'Amerique, tom. 2. p. 388.*

obey, in some measure, its motions, especially that by which it contracts itself. If this were not the case, it would not possibly roll itself up. These pieces are of different figures in different species, and are always arranged with as much regularity as the most elegant mosaic work. The thin pellicle which covers the crust, is a transparent skin, which has the effect of a varnish to the whole body. This skin rises a good deal, and even changes the reliefs of the mosaic work, which are very different when it is removed. Besides, this osseous crust is only a cover, totally independent of the internal parts of the animal's body, whose bones, and other organs, are constructed like those of all other quadrupeds.

The armadillos, in general, are inoffensive animals, and do no mischief, unless they are allowed to enter the gardens, where they eat melons, potatoes, and other roots and pot-herbs. Though natives of the warm climates of America, they can live in temperate regions. Some years ago, I saw one in Languedoc, which was fed in the house, and went about freely without doing any harm. They walk quickly; but they can neither run, nor leap, nor climb trees; so that they can never escape those who pursue them. Their only resources are to conceal themselves in their holes, or, if too distant from their retreats, to endeavour to dig a hole before they are seized; for the mole digs not more quickly than the armadillo.

madillo. Before being totally concealed, they are sometimes caught by the tail, when they make such a powerful resistance *, that the tail is left in the hands of the enemy. To prevent mutilating them in this manner, it is necessary to widen the holes, and then they are taken without resistance. Whenever they are seized, they roll themselves up, and never extend till they are placed near a fire. Their crust, though hard and rigid, is so sensible, that, when touched by the finger, the animal feels the impression, and instantly contracts itself. When their holes are deep they are forced out by smoke or by water. They are said to remain in their holes during a third part of the year †. It is certain, however, that they never come out but during the night, when they go in quest of food. The armadillo is hunted with small dogs‡, by whom

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* The nine banded armadillos, when their head and part of the body are concealed in the hole, believe themselves to be safe; and, indeed, they have nothing to fear, unless the following expedient be used to drag them out. The Indian arrives, and seizes the animal by the tail, which is very long. The armadillo opens his scales, and attaches them so strongly to the walls of his hole, that the Indian may pull off the tail, but cannot force the animal from his retreat. In this case, the hunter tickles him with a stick or the end of his bow, which makes the animal contract his scales, and then he is taken without difficulty; *Hist. nat. de l'Orénoque, par Gumilla, tom. 3. p. 226.*

† *Hist. gen. des Antilles, par le Père du Tertre, tom. 2. p. 298.*

‡ *Hist. nat. des Antilles, p. 123.*

they are soon overtaken. They contract themselves long before the dogs come up with them; and in this state they are seized and carried off. When on the top of a precipice, they escape both the dogs and the hunter; for they contract, and allow themselves to roll down like a bullet,* without breaking their crust, or receiving any injury.

These animals are fat, and very fruitful. The male exhibits, by his external organs, great generative powers. The female is said to produce every four months †; and, accordingly, the species is very numerous. As they make excellent eating, they are hunted in every manner. They are easily taken with snares, that are laid on the edges of waters and other moist places, which they always frequent. They never remove far from their holes, which are very deep, and which they endeavour to regain upon every alarm. They are said not to be afraid of the bite of the rattle snake ‡, though it is as dangerous as that of the viper. It is said that they live in peace with these reptiles, which are often found in their holes. The savages employ the crust of the armadillo for several purposes. They paint it with different colours, and make of it baskets, boxes, and other small vessels. Monard, Ximenes,

* *Hernandès, hist. Mexic. p. 314.*

† *Histoire naturelle de l'Orénoque, par Gumilla, p. 225.*

‡ *Nieremberg, hist. nat. Peregr. p. 159.*

nes, and other writers, ascribe great medicinal powers to different parts of these animals. They assure us that the crust reduced to a powder, and taken internally, even in a small dose, is a powerful sudorific; that the hip-bone, pulverised, cures the venereal disease; that the first bone of the tail, applied to the ear, restores hearing to the deaf, &c. We can give no credit to these extraordinary powers. The crust and bones of the armadillo are of the same nature with the bones of other animals. Effects so marvellous can only be produced by imaginary virtues.

S U P P L E M E N T.

Our original figure of the six banded armadillo was taken from a preserved crust. The figure now represented was drawn from the life by M. de Séve, who, at the same time, sent me the following description.

‘ The male is fourteen inches long, without reckoning the tail, and corresponds pretty well with the description given in your work. However, in your description, it is said the shoulder-shield consists of five parallel rows of small pentangular pieces, with an oval in each.

B b 2

‘ But

‘ But these characters seem to vary; for, in the
‘ animal I have drawn, the shoulder-shield is
‘ composed of six parallel rows, of which the
‘ small pieces are irregular hexagons. The
‘ rump-shield consists of ten parallel rows, and
‘ the small pieces are narrow squares. The
‘ rows near the tail lose their square form, and
‘ become more round. The tail, a part of which
‘ was broken off, is four inches and a half in
‘ length; but, in the drawing, I have made it
‘ six inches. In walking, it carries the tail high,
‘ and a little crooked. The trunk is covered
‘ with an ossaceous crust as well as the body. The
‘ trunk has six unequal rows, composed of small
‘ irregular hexagons. The head is three inches
‘ ten lines long, and the ears one inch three
‘ lines. The eye, instead of being sunk, as re-
‘ marked in your history, is indeed very small,
‘ but the globe is prominent, and well defended
‘ by eye-lids. The body is very fat, and the
‘ skin of the belly is wrinkled, and full of small
‘ tubercles, from which issue a number of pretty
‘ long white hairs. The crust, on the broadest
‘ part of the body, is six inches seven lines.
‘ The fore legs are two inches two lines long,
‘ and those behind three inches four lines. The
‘ fore claws are very long, the longest being one
‘ inch three lines, the next one inch two lines,
‘ and the smallest ten lines. The length of the
‘ hind claws is at most half an inch. The legs
‘ are

'are covered, as far as the claws, with a yellowish scaly skin. When the animal walks he supports himself on the tips of the claws of the fore feet. His penis, when drawn out in a state of repose, is six inches seven lines long, near four lines thick, and must augment considerably during its erection. When the penis stretches, it lies upon the belly like a snail, leaving a space of a line or two between each circumvolution. I have been told, that, when these animals copulate, the female lies on her back to receive the male. The one I have described was only eighteen months old.'

M. de la Borde remarks, that there are two species of armadillos in Guiana. The largest is black, and weighs from eighteen to twenty pounds. The other, which is brown, or rather iron-coloured, has three claws of different lengths. Its tail is soft, and without any armour, being covered with a simple skin. It is much smaller than the other, and weighs about three pounds only.

'The large armadillos,' says M. de la Borde, bring forth eight, and sometimes ten at a litter, in their holes, which they dig very deep. When attempts are made to unkennel this animal, he labours hard to render the hole still deeper, and descends almost perpendicularly. He goes out in the night only, and feeds upon worms, woodlice, and ants. His flesh is

'good, and, in flavour, somewhat resembles that
 'of a pig. The small iron-coloured armadillo
 'brings forth only four or five young; but she
 'digs still deeper, and is more difficult to catch.
 'When it rains, these animals go out during
 'the day; but, in fair weather, they remain in
 'their holes till night. They are always solitary;
 'and they are known to be in their holes by a
 'number of flies which follow their scent. When
 'the hunter digs in order to seize them, they
 'dike likewise; and, by throwing the earth be-
 'hind, shut up the mouths of their holes so
 'completely, that no smoke can enter. The
 'females bring forth in the beginning of the
 'rainy season.'

The large black armadillo of M. de la Borde
 may be referred to the twelve-banded species,
 which is the largest of all the armadillos; and
 the small iron-coloured kind may be referred to
 the eight-banded armadillo, though M. de la
 Borde says, that its tail is naked, a fact which
 merits confirmation.

We have given a figure of an armadillo with
 nine moveable bands and a very long tail.
 Dr William Watson has described this ar-
 madillo*, of which the following is an ex-
 tract. This animal was living in the house of
 Lord Southwell, and was brought from Ameri-
 ca. The figure, however, in the Philosophical
 Transactions,

* Philosophical Transactions, vol. 54. plate 7.

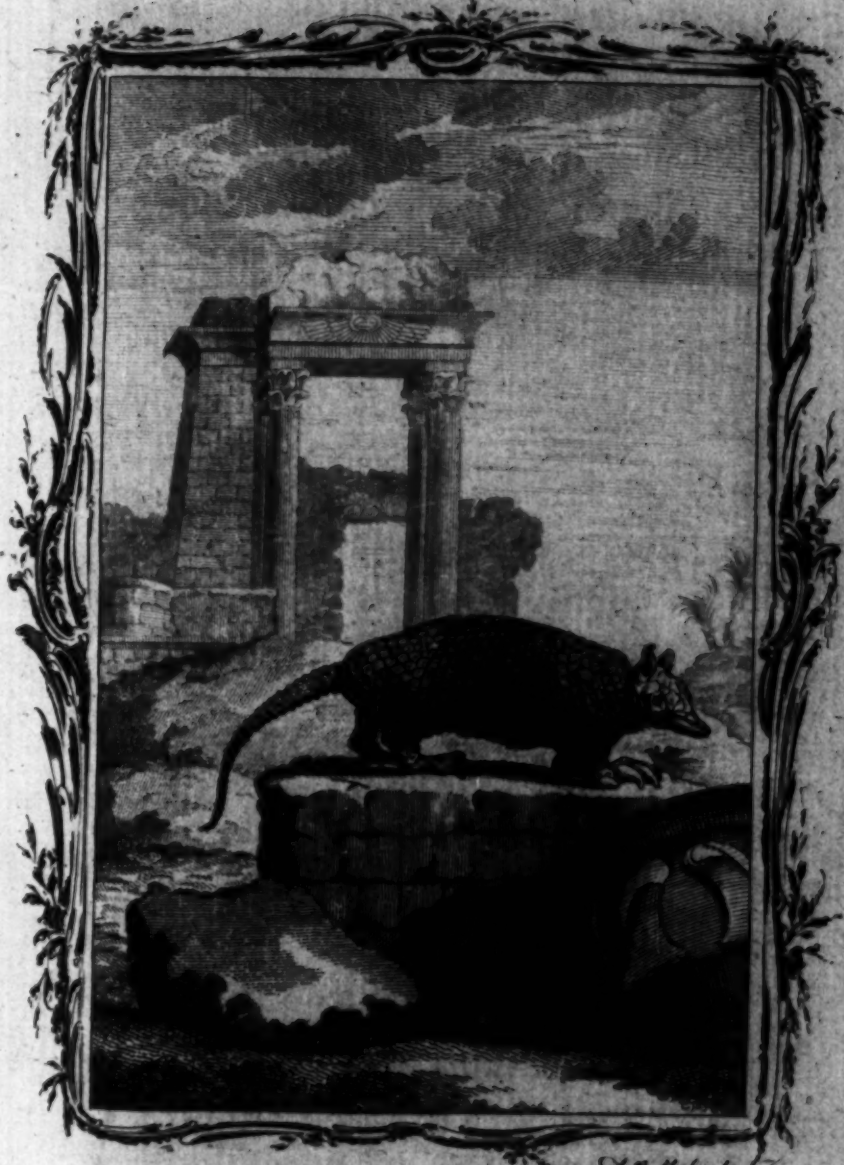
Plate CLV.



A. Bellis

NINE-BANDED ARMADILLO.

Plate CLVI.



A. Belli sculp.

TWELVE-BANDED ARMADILLO.

BY THE



THE

Plate CLVII



A. Wallis Sculpt.

TWELVE-BANDED ARMADILLO.

Plate CLIX.



LONG TAILED ARMADILLO.

Transactions, was not drawn till after the animal's death, which is the reason why it is rough and hard, as it is in our figure. This animal weighed seven pounds, and exceeded not the size of an ordinary cat. It was a male, and grew considerably while in Lord Southwell's possession. It was fed with flesh and milk, and refused to eat grain or fruits. Those who brought it from America assured us, that it dug a lodging for itself in the earth.

THE

THE PACA, or SPOTTED CAVY*.

THE Paca, or spotted Cavy, is an animal peculiar to the New World. It digs holes in the earth, like the rabbit, to which it has often been compared, though there is very little resemblance between them. It is even larger than the hare. Its body is thicker and plumper; the head is round and the muzzle short. It is very

* The upper jaw is longer than the lower. The nostrils are large, the whiskers long, the ears short and naked. The hairs are short and hard, the colour of the upper part of the body is a dark brown; the sides are marked, lengthwise, with lines of gray spots. The belly is white; in some, perhaps young ones, the sides and spots are of a pale yellow. There are five toes on each foot. It has only the mere rudiment of a tail. The length of the body is about ten inches. It is made like a pig, and in some places is called the hog-rabbit; *Pennant's synops. of quad. p. 245.*

Pag ou Pague; *Hist. d'un voyage au Brasil, par de Lery, p. 157.*

Paca Brasiliensibus; *Marcg. p. 224. Piso, p. 101.*

Mus Brasiliensis magnus, porcelli pilis et voce, Paca dictus, *Marcgravii; Raii synops. quad. p. 226.*

Cavia paca; *Klein. quad. p. 50.*

Cuniculus major palustris, fasciis albis notatus: *Barrère, hist. Franc. Equinox. p. 152.*

Cuniculus caudatus, auritus, pilis obscure fulvis, rigidis, lineis ex albo flavicantibus ad latera distinctis; *Briffon. quad. p. 99.*

Mus paca, cauda abbreviata, pedibus pentadactylis, lateribus flavescence-lineatis; *Lynn. Syst. Nat. p. 81.*

very fat, and rather resembles a young pig * in figure, grunting, gait, and manner of eating; for it uses not, like the rabbit, its fore feet in carrying food to its mouth; and, like the hog, it digs the earth in quest of nourishment. It frequents the banks of rivers †, and is only found in the warm and moist places of South America. Its flesh is fat, and makes excellent food ‡. Even its skin is eat §, like that of a pig. For these reasons,

* Hoc genus animalia pilis et voce porcellum referunt, dentibus et figura capitis, et etiam *magnitudine* cuniculum; auribus murem; suntque singularia et sui generis; *Rati synops. quad. p. 227.* Mr Ray might have added, that this animal resembles a pig still more in the figure of its body, in the taste and whiteness of its flesh, in fatness, and the thickness of its skin; and that it is larger than any rabbit.

† The pacas resemble pigs of two months old; and are very numerous about the banks of the river St Francis; *Descript. des Indes Occident. par de Laët, p. 484.*

‡ The *Pac* is the fattest of all our Cayenne animals, and its flesh is extremely good and well flavoured; *Voyage a Cayenne, par Ant. Binet, p. 340.* The *Pak* is a well known species of rabbit; its flesh is much better than that of the agouti, or long nosed cavy; *Barrère, hist. Franc. equin. p. 185.* The *Pacs* of Brasil are large; their head and muzzle resemble those of cats; their skin is of a dull gray colour, spotted with white. Their flesh is very good and tender; *Descript. des Indes Occident. par Herrera, p. 252.*

§ The muzzle of the *Paca* is round, like that of a cat: Its skin is black, and marked with some white spots. Not only the flesh, but the skin is delicious, tender, and in great request with the luxurious; *Hist. des Indes, par Maffée, p. 70.* *Paca* magnitudine est porcelli, pingui et crasso corpore, et circiter decem digitos longo: Capite instar cuniculorum nostrorum crasso; auribus pilis nudis et paulum acutis: Nares habet amplas;

reasons, this animal is in perpetual request. It is difficult for the hunters to take him alive. When surpris'd in his hole, which they lay open both before and behind, he defends himself, and even bites in a cruel manner. His skin, though covered with coarse short hair, makes a very good fur *, because it is regularly spotted on the sides. These animals produce often, and in great numbers ; many of them are destroyed by men and beasts of prey ; and yet the species is always numerous. It is a native of South America, and is found in no part of the Old Continent.

S U P.

amplas ; os inferius brevius superiori : Rimam instar leporis, non tamen fissura ; barbam felinam, seu leporinam prolixam, et post oculos pone aures iterum tales pilos : Crura priora paulo breviora posterioribus ; in pedibus digiti *quatuor* : Cauda brevissimo ut Aguti ; pili corporis sunt umbræ coloris, breves, et ad tactum duri. In lateribus autem secundum longitudinem maculas habet cinereas, in ventre albicat. Cibus oblatum pedibus non tenet ut Aguti, sed in terra positum devorat, instar suis, atque ad eundem pene modum grunnit. Carnem habet eximiam et pinguem, ita ut non habeat opus lardo quando affatur, unde Lusitanis *caca real* vocatur illorum venatio ; *Marcgrav. hist. Brasil. p. 224. Note.* Marcgrave errs when he gives this animal four toes only to each foot ; for it is certain that there are five toes on all the feet ; the inmost is, indeed, so small as to be distinguishable by the claw only.

* The *Pag*, or *Pague*, is an animal about the size of a small spaniel. Its head is of a clumsy make ; its flesh has nearly the same taste as that of veal ; and its skin, being beautifully spotted with white, gray, and black, makes a very rich fur ; *Hist. d'un voyage au Brasil, par de Lery, p. 157.*

At Maragnon we find animals called *pacs* ; which are round, and somewhat larger than the *coatis*. Their head is thick and short, their ears small, and their tail not longer than a little finger.

S U P P L E M E N T.

The description of the spotted cavy, given in the last article, was taken from a young subject, which had not acquired one half of its growth. I have since had one sent me, which, when it arrived, was larger than the former, and, from the month of August 1774, to the 28th day of May 1775, during which period it was nourished in my house, its size continued to augment. I now proceed to give an account of its mode of living and acting, from the remarks of the *Sieur Trécourt*.

When provided with a wooden cage or box, this animal remains perfectly tranquil during the day, especially when plentifully supplied with food. He seems even to have an affection for his retreat, as long as the day lasts; for, after feeding, he retires spontaneously into it. But, when night approaches, by perpetual restlessness and agitation, and by tearing the bars of his prison with his teeth, he discovers a violent desire to get out. Nothing of this kind happens during the day, unless he has occasion for some natural evacuation; for he cannot endure the smallest degree of dirtiness in his little apartment; and,

singer. Their skin is beautiful, being covered with short hair, variegated with black and white spots; *Mission au Maragnon, par le P. Claude d'Abbeville, p. 251.*

and, when about to void his excrements, he always retires to the most distant corner he can find. When his straw begins to smell, he often throws it out, as if he meant to demand fresh litter. This old straw he pushes out with his muzzle, and goes in quest of rags or paper to replace it. But his attachment was not confined to his cage. All obscure corners seemed to be agreeable to him; and he often formed a new nest for himself in presses which he found open, or under the kitchen grate. Wherever he established a new abode, nothing but force could make him leave it. In this animal, which was a female, the propensity to cleanliness was so strong, that, a large male rabbit being shut up with her when she was in season, she took an aversion to him the moment he voided his excrement in their common apartment. Before this event, she had received him so cordially, that something was expected; she even made considerable advances, for she licked his nose, ears, and body; and she allowed him to take almost the whole food which was given her. But, as soon as the rabbit had infected the cage with his ordure, she retired into the bottom of an old press, where she made a bed of paper and rags, and returned not to her old lodging till she saw it neat, and freed from the unclean guest which had been presented to her.

The spotted cavy is easily accustomed to a domestic life. Unless industriously irritated, he is gentle

gentle and tractable. He is fond of adulation, and licks the hands of the person who caresses him. He knows those who take care of him, and readily distinguishes their voices. When gently stroked on the back, he stretches himself out, lies down on his belly, by a small cry expresses his acknowledgment, and seems to ask a continuance of the favour. When seized in a rough manner, however, he makes violent efforts to escape.

His muscles are large and strong; and yet his skin is so sensible, that the slightest touch is sufficient to excite in him the most lively emotions. This great sensibility, though generally accompanied with sweetness of temper, produces sometimes, when too much irritated, or when a disagreeable object is presented, the most violent paroxysms of passion. The bare sight of an unknown dog is sufficient to produce this effect in the spotted cavy. When confined in his cage, he has been observed, upon the entrance of a strange dog into the chamber, to bite the door, and make an effort to force it. At first, it was believed that he never wished to go out, unless when pressed by natural necessities. But, when at full liberty, we were surprised to see him dart out suddenly upon an innocent dog, which he bit very severely. In a few days, however, he became familiar with this dog. People with whom he is unacquainted, if they irritate him, he treats in the same manner. But he never
bites

bites those who have the care of him. He has an aversion to children, whom he always pursues. His passion is expressed by chattering his teeth, and is always preceded by a kind of grunting.

This animal sits often on his posteriors, and sometimes remains long in this situation. He has the air of combing his head and whiskers with his paws, which he continually licks and moistens with his saliva. In this operation, he often uses both paws at a time; he then scratches all the parts of his body which he can reach with his fore feet, and completes his dressing by scratching with his hind paws such parts as cannot be reached by the fore ones.

This animal, notwithstanding, is gross and corpulent. His body is neither delicate, nor smooth, nor nimble, but rather heavy and lurid, having nearly the gait of a small hog. He runs seldom, and, when he does, it is always with a bad grace. He has no vivacious movement, but that of leaping upon the furniture, or upon such things as he wishes to seize and carry off. He resembles the hog still farther in the whiteness and thickness of his skin, which cannot be drawn off, because it adheres to the flesh.

Though our animal had not acquired his full growth, he was eighteen inches long in his natural contracted situation; but, when he extended himself, he was near two feet from the point

of the muzzle to the extremity of the body ; while the spotted cavy, described in the original work, exceeded not seven inches five lines ; which difference, as there was no other between the two animals, must be ascribed entirely to that of their ages.

The height before, in the individual we are now describing, is seven inches, and behind about nine inches and a half ; so that, in walking, the hind part of the body appeared always higher than the head. The posterior part of the body is also the thickest, being nineteen inches and a half in circumference, while that of the anterior part is only fourteen inches.

The body is covered with short, coarse, thinly scattered hairs, of a dusky colour, and deeper on the back. But the belly, the breast, the throat, and the interior parts of the legs, are of a dirty white : This animal is rendered exceedingly remarkable, by five longitudinal rows of white spots, which run along the body, and approach each other at their extremities.

The head, from the nose to the top of the front, is near five inches long, and very convex. The eyes are large, prominent, of a brownish colour, and about two inches distant from one another. The ears are roundish, about eight lines in length, and nearly of an equal breadth at the base ; they are plaited, and covered with a down so fine as to be almost imperceptible either

400 THE SPOTTED CAVY.

ther to the touch or the sight. The end of the nose is broad, nearly of a black colour, and divided like that of the hare. The nostrils are very large. The animal has considerable strength and address in the management of this organ; for I have often seen him raise the portcullis of his cage with it. The under jaw is an inch shorter, and much narrower than the upper. On each side, and toward the base of the upper jaw, there is a kind of longitudinal fold, garnished with hair on the middle, which, at first sight, especially when viewed sidewise, may be mistaken for the mouth; for the mouth appears not, unless when it is open; its aperture exceeds not six or seven lines; and it is not above two or three lines distant from the fold mentioned above.

Each jaw is armed with two very long incisive teeth, which are as yellow as saffron, and of strength sufficient to cut wood. I have seen this animal, in the course of a single night, cut a hole in one of the planks of his lodging large enough to let out his head. His tongue is narrow, thick, and somewhat rough. His whiskers consist of black and white hairs, placed on each side of the nose; and there are similar hairs, but blacker and fewer in number, on each side of the head under the ears. The resistance of the animal prevented us from counting the number of its grinders.

Each foot, both before and behind, has five toes, four of which are armed with claws about
half

half an inch long, and of a flesh colour. But this colour should not be regarded as a constant character; for, in several animals, and particularly the hare, we often find the claws black, while, in other individuals, they are whitish or flesh-coloured. The fifth, or interior claw, is very short, and visible only when the animal raises his foot. Between the hind feet, at a little distance from the organs of generation, there are two paps of a brownish colour. In fine, though the tail is hardly visible, by searching, we find a small button of two or three lines long.

The domestic paca, or spotted cavy, eats every thing presented to him, and has a strong appetite. He is commonly fed with bread, which he eats equally well, whether it be soaked in water, in wine, or even in vinegar. But, he is so fond of sugar and fruits, that, when offered to him, he expresses his joy by bounding and leaping. He is also fond of roots and pot-herbs of all kinds; for he eats, with equal relish, grapes, cellery, onions, and garlic; and he refuses not coleworts, grass, moss, or the bark of trees. We have even seen him eat wood, though half charred. Flesh he seemed to like worse than any other food, and he eat it but rarely, and in very small quantities. He might be easily fed with grain; for he often searched for it among his litter. When he drinks, he laps like the dog. His urine is thick, and has

an insupportable odour. His excrements consist of small crottels, which are longer than those of the rabbit or hare.

From these minute observations, we are led to believe that this species might be naturalized in France, which, as the animal is easily tamed, and his flesh is excellent, would be a useful acquisition. He seems not to be much afraid of cold; and, besides, as he can dig holes in the earth, he could easily defend himself against the rigour of winter. A single individual of this species would furnish as much good meat as seven or eight rabbits.

M. de la Borde informs us, that the spotted cavy generally lives on the banks of rivers; and that he forms his hole in such a manner as to have three different ways of entering, or going out. 'When pursued,' M. de la Borde remarks, 'he takes to the water, and dives frequently; but, when attacked by the dogs, he makes a vigorous defence.' M. de la Borde adds, 'that the flesh of this animal is much esteemed at Cayenne, and that, however prepared, it is excellent.'

'The spotted cavy lives alone in his hole, and leaves it not till night, when he goes in quest of food. He comes not abroad during the day, unless when he is obliged by the necessities of nature; for no dung is ever found in his kennel; and, when he returns, he always
shuts

Plate CLX.



PACA.

THE SPOTTED CAVY. 403

' shuts up the entrances with leaves and twigs.
' The female generally produces but one at a
' time, which quits not the mother till it be full
' grown, or, if it be a male, till it copulates.
' At Cayenne, there are two or three species,
' which are said not to intermix. Some of them
' weigh from fourteen to twenty pounds, and
' others from twenty-five to thirty.'

C c 2

The

THE VIRGINIAN OPOSSUM*.

THE Opossum is an American animal, and easily distinguishable from all others, by two very singular characters. 1. Under the belly of the female there is a large cavity in which she receives

* All the species of the opossum have two canine teeth in each jaw. The cutting teeth in each jaw are unequal. They have five toes on each foot; and the hind feet are formed like a hand, with a distinct thumb.—The Virginian opossum has a long sharp pointed nose, large, round, naked, and very thin ears, small, black, lively eyes, and long stiff hairs on each side of the nose, and behind the eyes. The face is covered with short soft hairs, of a dusky colour. Above each eye, there is a large white spot. The cheeks are whitish, and the sides of the neck of a dirty yellow. The hind part of the neck, and the back, are covered with soft, but uneven hairs, above two inches long, the bottoms of which are of a yellowish white, the middle part black, and the ends whitish. The sides are covered with dirty and dusky hairs, and the belly with soft, woolly, dirty white hair. The legs and thighs are black, the feet dusky, and the claws white. The base of the tail, for near three inches, is clothed with long hairs like those on the back, and the remainder with small scales; the half next the body is black, and the rest white. The tail has a disagreeable appearance, resembling the body of a snake, and has the same prehensile power as that of some monkeys. The body is round, and pretty thick, and the legs are short. The female, on the lower part of the belly, has a large pouch, in which the teats are lodged, and where the young shelter as soon as they are born. The length of one I examined was seventeen inches, and that of the tail fourteen; Pennant's *Synops. of quad. p. 205.*

ceives and suckles her young. 2. In both male and female, the first toe of the hind feet has no claws, and is separated from the rest, like the thumb in the human hand; while the other toes of the same feet are placed near each other,

C c 3

and

The Brazilian name of this animal is *farigue*, *çarigue*, or *çarigueya*.

Carigueya jupatiima; *Pison. hist. Brasil. p. 323.*

Carigueya taiibi; *Marcgr. hist. nat. Brasil. p. 222. Raji synops. quad. p. 182. 185.*

Tlaquatzin; *Hernand. hist. Mexic. p. 300.* Admiranda fera quam Indi vocant Tlaquatzin, Antonius Herrera Taquatzin dixit. Recentes Hispani scriptores, corrupto nonnihil nomine, Tlaquacum. Cardanus Chiuram sive Chuciam; Stadenius Seruoi; nomenclator semi-vulgaris. Raphe Hamor, in descriptione Virginiae, Opossumem dixit: Alii aucham, alii Sasapim, alii Cerigonem dixere; *Eus. Nieremberg, hist. nat. peregrin. p. 156. Note.* The description of this animal given by Nieremberg is copied verbatim from Hernandes.

Cerignon, according to Maffé; *Hist. des Indes, liv. 2. p. 46.* and Barleus, *Res gestae in Brasilia, p. 222.* The *Cerignon*, says Maffé, is a wonderful creature.——From its belly hangs two pouches in which it carries its young, each of which adheres firmly to its teats, and never quits the hold till it be able to go in quest of food. *Note.* Maffé is wrong, when he mentions the opossum as having two pouches. However, when the dugs are swelled with milk, they raise a protuberance in the middle of the bag, which gives it the appearance of being divided into two. Maffé probably saw the animal in this state, which would lead him into the mistake.

Sarigoy; *de Lery, p. 156.*

Seruoi or serwoi; *Stadenius, Hist. Brasil. p. 129.*

Chiurca and *Chucia*, according to Oviedo and Cardan; *De Subtilitate, lib. 10. oper. p. 531.*

Apoffumes; *Raph. Hamor, descript. de la Virginie.*

Opassum; *de Laët, Hist. de Nouveau Monde, p. 88.*

Carigueya seu Marsupiale Americanum; *Anatomy of an opossum*

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and armed with crooked claws. The first character has been remarked by some travellers and naturalists; but the second has entirely escaped them. It was first observed by Edward Tyson, an English physician. He is the only author who has given a good description of the female;

opossum by Edward Tyson, London, 1698. Phil. Transf. No. 239. Note. Tyson described the female, and Cowper afterwards gave a description of the male; *Phil. Transf. No. 290.*

Opossum; Catesby's Carolina, Apend. p. 29. Beverly's Virginia, p. 135. Lawson's Carolina, p. 120. Rochfort's Antilles, vol. 1. p. 283.

Offa; Voyage de la Hontan, tom. 2. p. 44.

Manitou; Hist. gen. des Antilles, par le P. du Tertre, tom. 2. p. 301.

Faras, or Ravale; Hist. nat. de Orénoque, par Gumilla, tom. 3. p. 238.——Gumilla falls into the same blunder with Maffé, by telling us, that the female opossum has two pouches.

Rat savage; Mem. sur la Louisiane, par Dumont, p. 83.

Rat de bois, Wood-rat; Hist. de la Nouvelle France, par le P. Charlevoix, tom. 3. p. 333. Hist. de la Louisiane, par du Pratz, tom. 2. p. 94.

Simi-vulpa; Gesner. quad. p. 870.——*Icon. quad. p. 90. Aldrov. quad. p. 223.*

Vulpes major putoria, cauda tereti et glabra; Barrerè, Hist. Franc. Equinox. 166.

Le Manicou; Feuillée Obs. Peru. tom. 3. p. 206.

Mus marsupialis sylvestris, Brasiliensis Beutel ratze; Klein. quad. p. 59.

Philander, opossum, seu Carigueya Brasiliensis; Seba, tom. 1. p. 56. tab. 36. mas fig. 1. foemina fig. 2.——*Philander Orientalis; Seba, tom. 1. p. 61. tab. 38. fig. 1.*——*Philander maximus Orientalis; Seba, tom. 1. p. 64. tab. 39. Note.* These three appellations, by which Seba means to point out three different animals, denote only the same animal, as shall be shown in the text.

Philander

male *; and, a few years after, Mr Cowper, a celebrated English anatomist, communicated to Tyson the observations he had made upon the male. Other authors, and particularly the nomenclators, who perpetually multiply species without necessity, have committed a number of blunders with regard to this animal, which we must endeavour to correct.

Our opossum is the same animal with the great Oriental philander of Seba †; for, of all the animals of which Seba has given figures, and to which he applies the names of *Philander*, *Opossum*, or *Carigueya*, this alone has the two characters of a pouch under the belly, and thumbs without claws on the hind feet. Neither is the opossum an Eastern animal, but a native of the warm climates of the New World; for the two we have in the royal cabinet were brought from America. That of Tyson was sent to him from Virginia. M. de Chanvallon, a correspondent of the academy of Sciences at Martinico, who gave us a young opossum, recognised the other two to be real American opossums. It is agreed by all voyagers, that this animal is found in Brasil, New Spain, Virginia, the Antilles, &c. and none

Philander saturate spadiceus in dorso, in ventre flavus, maculis supra oculos flavis.——*Philander, le Philandre; Brisson. quad. p. 207.*

Didelphis marsupialis, mammis octo intra abdomen; Linn. Syst. Nat. p. 71. Amoen. Acad. tom. 1. p. 279.

* The anatomy of an opossum, London, 1698.

† Seba, tom. 1. p. 64. tab. 39.

none of them ever mention their having seen it in the East Indies. Hence Seba deceives himself, when he calls them the *Oriental Philanders*. He says, that his philander was sent him from Amboina, along with other curiosities, under the name of *Coes-coes*; but he allows, at the same time, that it had been brought to Amboina from some other remote country *. This confession is alone sufficient to throw a suspicion on the denomination of *Oriental Philander*; for it is very probable that travellers may have transported this animal from America to the East Indies; but we have no proof of its being a native of Amboina; and the very passage quoted from Seba seems to indicate the contrary. The source of this error, in fact, as well as that of the name *Coes-coes*, is to be ascribed to Piso, who says †, that, in Amboina, there is an animal, similar to the Brazilian opossum, which is called *Cous-cous*. Piso mentions no authority for this assertion. It would be very singular, if it were true, that this animal is found in Amboina, and in no other part of the East Indies. Seba, on the contrary, remarks,

* *Philander maximus orientalis foemina*. Inter alia rariora et hocce animal nobis ex Amboina missum est, sub nomine *Ces-coes*, eo quidem delatum EX ORIS REMOTIORIBUS; *Seba*, vol. 1. p. 64.

† In Indiis Orientalibus, IDQUE SOLUM, QUANTUM HACTENUS CONSTAT, IN AMBOINA similis bestia frequens, ad felis magnitudinem accedens; mactata ab incolis comeditur, si rite praeparetur, nam alias foetet. Nomen illi *Cous-cous* inditum; *Pison. hist. nat. Brasil. p. 323.*

remarks, that the one sent to him from Amboina was not a native of that place, but had been transported from a more distant country. But, though he was ignorant of the region from which his philander was brought, he has presumed to give it the epithet of *Oriental*. It is unquestionably, however, the same animal, as will appear from comparing his figure, Tab. 39. with Nature. But what augments this error, at the same time that the author gives to the American opossum the name of *the great Oriental philander*, he exhibits to us another animal, which he believes to be different from the former, and calls it the *American philander* *; and yet, from his own description, it differs from the great Oriental philander only in being smaller, and in having the spots above the eyes of a browner colour. These differences are too slight and too accidental to constitute distinct species; for he takes no notice of another difference, which, if it had any existence, would be much more essential, namely, that this American philander of Seba † has a sharp claw upon the thumbs of the hind feet, while his great Oriental philander has no claws on these thumbs ‡. Now, it is certain, that our opossum, which is the true American one, has no claws on the hind thumbs. If any animal, therefore, with sharp claws on these thumbs, existed, like that represented by Seba in his 36th table,

* Seba, tab. 36. fig. 1. and 2.

† Id. *ibid.*

‡ Id. tab. 39.

table, it could not, as he maintains, be the American opossum. But this is not all: Seba gives a third animal under the name of the *Oriental philander* *; of which, however, he makes no mention in his descriptions of the other two, but follows François Valentin, an author, as formerly remarked, who merits no confidence. This third animal is still the same with the two first. Hence it appears, that the three figure's in Seba's 36th, 38th, and 39th tables, are one and the same animal; and it is probable, that the drawer, from inattention, has given sharp claws to the hind as well as to the fore thumbs, as in tables 36th and 38th, and that, being more exact in table 39th, he has represented the thumbs of the hind feet, as they really are, without claws. We are, therefore, persuaded that these three animals of Seba are only individuals of the same species, which is the same with that of our opossum, and that the slight differences in size and colour, mentioned above, proceed from age or from accident. The author himself allows, that the two animals in his 36th and 38th tables, differ only in size and some shades of colour †; and that the third, table 39th, differs from the two former in being larger only, and having the spots above the

* Seba, tab. 38. fig. 1.

† Est autem femella hacce Americanis Philandris FOEMINIS QUAM SIMILLIMA; nisi quod pilis dorsalibus aliquantum saturatius fuscis vestita, et toto habitu procerior sit illis; Seba, vol. 1. p. 61.

the eyes, instead of yellowish, of a brown colour. Seba remarks, ' That, according to Francis Valentin, the philander, table 38th, is the largest kind found in the East Indies, and especially among the Mallays, where it is called *Pelandor Aroé*, that is, *the rabbit of Aroé*, though Aroé is not the only place where these animals are to be met with; that they are common in the island of Solor; that they are reared along with the rabbits, to whom they do no harm; that their flesh, which is excellent, is eaten by the inhabitants,' &c. These facts are extremely questionable, not to say false. 1. The philander, tab. 38th, is not the largest East India kind; for, according to our author, that represented in tab. 39th, which he likewise attributes to the East Indies, is larger. 2. This philander has no resemblance to the rabbit; and, consequently, is improperly called *the rabbit of Aroé*. 3. No voyager to the East Indies makes mention of this remarkable animal; neither is it found in any other part of the Old Continent. Seba himself seems to perceive not only the incapacity, but the unfaithfulness of the author he quotes: 'Cujus equidem rei,' says he, 'fides sit penes autorem. At mirum tamen est, quod D. Valentinus philandri formam haud ita descripserit prout se habet, et uti nos icones ad vivum factas praegressis tabulis exhibuimus *.' But, to give a complete demonstration of the little credit due

* Seba, tom. 1. p. 61.

due to the testimony of Francis Valentin, who has written a history of the East Indies in five folio volumes *, it is sufficient to refer to what is said of him by Artedi †, and to the reproaches thrown upon his veracity by Seba himself ‡. Valentin asserts, 'that the pouch of the philander
' is a uterus, in which the young are conceived;
' that, after dissecting a female himself, he could
' find no other; that, if this pouch is not a real
' uterus, the teats are to the young what the pedicles are to fruits; that they adhere to these
' teats till they are full grown, and then separate
' as the fruit from the pedicle, after it arrives at
' maturity,' &c. The truth is, that Valentin, who assures us that these animals are extremely common in the East Indies, and particularly in the island of Solor, had never seen one of them in that country; that all he has said, including his most conspicuous errors, he has copied from Piso and Marcgrave, who both copied from Ximenes, and are wrong in every article they have added of their own; for Marcgrave and Piso, as well as Valentin, assert, in the most positive

* Ond en nieuwt Oost-Indien, &c: 1724.

† Multa scripsit Franciscus Valentinus, quae Judaeus Appella credat . . . Ita comparatus est hic liber Belgicus, ut historicorum naturalium genuinorum et eruditorum oculos nullo modo ferre possit; *Artedi Ichthyologiae hist. literar. p. 55. et 56.*

‡ Inde autem quam liquidissime detegitur error a D. Francisco Valentino commissus, circa historiam horum animalium; *tom. 3. p. 273. . . . Error absonus valde et enormis, inde forsitan ortum duxit, quod vir iste hanc animalium speciem haud debite examinaverit, &c.; Seba, vol. 1. p. 64.*

sive tone, that the pouch is the true uterus*, where the young opossums are conceived. Marcgrave says, that he dissected a female, and found no other uterus. Piso goes farther, and tells us, that he dissected several females†, and never could discover any internal uterus; and to this assertion he adds another equally false, that this animal is found in Amboina. Let men now judge what credit is due to Marcgrave, Piso, and Valentin, the first of whom has examined with no attention, the second has augmented the errors of the first, and the third has copied from both.

I ask pardon of my readers for this long critical discussion. But, when errors are to be corrected, we can never be too exact, or too attentive, even to minute circumstances.

M. Brisson, in his account of quadrupeds, has implicitly adopted what he found in the works of Seba, and follows him both in his denominations and descriptions. He even proceeds a step farther than his author, when he makes three distinct species of the philanders, represented in tab. 36. 38. and 39. of Seba; for, if M. Brisson had examined the idea given by Seba, he would

have

* Haec bursa ipse uterus est animalis, nam alium non habet, uti ex sectione illius comperi: In hac semen concipitur et catuli formantur; *Marcgrav. Hist. Brasiliens. p. 223.*

† Ex REITERATIS horum animalium sectionibus, alium non invenimus uterum praeter hanc bursam, in qua semen concipitur et catuli formantur; *Pison. Hist. nat. Brasil. p. 323.*

have found, that the latter does not exhibit his philanders as three distinct species. Seba never doubted, that an animal found in the warm climates of America, would not also be found in the warm regions of Asia. He denominated his animals Oriental or American, according as they came to him from the one or the other Continent. It is obvious, from the following passage, that he does not take the word *species* in a strict sense: 'This is the largest *species* of these animals;' p. 61. He adds, 'This female is perfectly similar to the female philanders of America; it is only longer, and covered on the back with hair of a deeper yellow.' These differences, as formerly remarked, are accidental varieties only, which are common among individuals of the same species at different ages; and, in fact, Seba never pretended to make a methodical distribution of animals into classes, genera, and species. He gives only figures of the different specimens in his cabinet, which he distinguishes by numbers, according to any varieties he perceived in their size, the tints of their colours, or the countries from which he obtained them. It is apparent, therefore, that M. Brisson had no authority for making three species of philanders, especially as he gives no distinctive characters, and makes no mention of the want of claws on the thumbs of the hind feet. He says, in general, that the philanders have *claws*, without making any exception. The philander, however, which he
saw

saw in the royal cabinet, had no claws on the thumbs of the hind feet ; and it appears to have been the only one he ever saw ; since, in his book, there is no more than No. 1. marked with two asterisks. The chief error in Brisson's work is in the list of species, which is more numerous than that of Nature.

M. Linnaeus is the only other nomenclator we have to examine. In this article, he is less exceptionable than in many others ; for he has suppressed one of the three species of Seba*. But he ought to have reduced them to one.

From the preceding examination, which has been made with the most scrupulous impartiality, it appears, that the *philander*, *opossum*, seu *carigeya Brasiliensis*, of Seba, tab. 36. fig. 1. 2. and 3. the *philander Orientalis maximus*, tab. 39. fig. 1. the Oriental *philander*, No. 2. and the *philander* of Amboina, No. 3. of M. Brisson ; and, lastly, the *marfupialis*, No. 1. and the *opossum*, No. 3. of Linnaeus, are the same animal, and that this animal is our opossum, which is peculiar to South America, and was never seen in the East Indies, except when transported thither. I thought I had cleared up every ambiguity ; but still some difficulties remain with regard

* The Count de Buffon's strictures on the *Systema Naturae* of Linnaeus are adapted to the tenth edition ; Buffon's criticisms, of course, have no application to the present state of Linnaeus's system. The translator, therefore, thinks it unnecessary to insert them ; and, he apprehends, the reader will not think himself injured by the omission.

regard to the *taiibi*, which Marcgrave * has not represented as an animal different from the *carigueya*; but, nevertheless, Johnston †, Seba ‡, Klein ||, Linnaeus §, and Brisson **, give it as a species distinct from the preceding. In Marcgrave, however, we find the two names *carigueya* and *taiibi* at the head of the same article, where it is said, that this animal is called *carigueya* in Brasil, and *taiibi* in Paraguay. ‘Carigueya Brasiliensibus, aliquibus jupatiima, Petiguaribus ‘taiibi.’ He then gives Ximenes’s description of the *carigueya*. After which, we find another animal called *taiibi* by the Brasilians, *cacharro domato* by the Portuguese, and *booschratte*, or *wood-rat*, by the Dutch. Marcgrave says not that this animal is different from the *carigueya*; he represents it, on the contrary, as the male *carigueya*: ‘Pedes et digitos habet ut foemella ‘jam descripta.’ It is obvious, therefore, that, in Paraguay, both the male and female opossum are called *taiibi*, and that, in Brasil, the name *taiibi* is given to the male, and that of *carigueya* to the female. Besides, the differences between these two animals, as they appear even from the descriptions given of them, are too slight to constitute distinct species. The most remarkable difference

* Marcgrave, Histor. Natur. Brasiliens. pag. 223.

† Johnston, de Quadruped. pag. 95.

‡ Seba, vol. 1. pag. 57. tab. 36. fig. 4.

|| Klein, de Quadruped. pag. 59.

§ Linnaeus Syst. Nat. edit. 10. pag. 54. No. 2.

** Brisson, Regn. Anim. pag. 290.

difference is in the colour of the hair, which, in the carigueya, is yellow and brown, but gray in the taiibi, whose hairs are white below *, and brown or black at the extremities. It is more than probable, therefore, that the taiibi is the male opossum. Mr Ray † seems to be of this opinion, when, speaking of the carigueya and taibii, he says, 'An specie, an sexu tantum a praecedente diversum?' Seba, however, notwithstanding the authority of Marcgrave, and the rational doubts of Ray, gives, in tab. 36. fig. 4. the figure of an animal, which, without any hesitation, he calls *taiibi*, and, at the same time, says, that it is the same with the *tlauquat-zin* of Hernandez. This is to accumulate error upon error; for, from the acknowledgment of Seba himself, his taiibi, which is a female, has no pouch under the belly ‡, and Hernandez makes this pouch the chief character of his *tlauquat-zin*. The taiibi of Seba, therefore, cannot be the *tlauquat-zin* of Hernandez, because it wants the pouch, nor the taiibi of Marcgrave, because it is a female. It is certainly another animal, ill drawn, and worse described, to which Seba has

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thought

* The hair of the wood-rat is of a fine silver gray colour. Some of them are seen totally white. The female has, under her belly, a purse which she can open and shut at pleasure; *Charlevoix's Descript. de la Nouv. France, tom. 3. p. 334.*

† Raii Synops. Quad. p. 185.

‡ Marsupio tamen pro recondendis catulis caret haec species; *Seba, tom. 1. p. 58.*

thought proper to give the name of *taiibi*, and absurdly refers it to the tlaquatzin of Hernandez, which, as formerly remarked, is the same with our opossum. Brisson, and Linnaeus, with regard to the taiibi, have blindly followed Seba. They have both copied Hernandez's blunder as to the tlaquatzin, and made an equivocal species of this animal, the one under the name of the *Brasilian philander**, and the other under that of *philander*†. The true taiibi of Marcgrave and Ray, therefore, is neither the taiibi of Seba, nor the philander of Linnaeus, nor the Brasilian philander of Brisson; and the two latter are not the tlaquatzin of Hernandez. The taiibi of Seba, if it had any existence, would be an animal different from all those mentioned by the above authors, and would require a new denomination. In fine, as the male opossum has no pouch, it is not surprising that the male and female have been considered as different animals, and that the female has got the name of the *carigueya*, and the male that of the *taiibi*.

Edward Tyson dissected and described the female opossum with great accuracy. In his individual, the head was six inches long, the body thirteen, and the tail twelve. The fore legs were six inches in length, and the hind legs four inches and

* *Philander pilis in exortu albis, in extremitate nigricantibus vestita. . . . Philander Brasiliensis; Regn. Anim. p. 290.*

† *Didelphis philander, cauda basi pilosa, auriculis pendulis, mammis quaternis; Syst. Nat. p. 72.*

and a half. The circumference of the body was from fifteen to sixteen inches; and that of the tail, at its origin, three inches, and only one toward the extremity. The head across the eyes was three inches broad, gradually diminished to the nose, and resembled the head of a pig more than that of a fox. The orbits of the eyes were much inclined in the direction from the ears to the nose. The ears were rounded, and about an inch and a half long. The aperture of the mouth was two inches and a half, measuring from one of the angles of the lips to the end of the muzzle. The tongue was pretty narrow, three inches long, rough, and full of small papillae, directed backward. There were five toes on the fore feet, all armed with crooked claws, and an equal number on the hind feet, four of which only had claws, and the fifth, which is the thumb, was separated from the rest, placed in a lower situation, and had no claw. There was no hair on the claws, which were covered with a reddish skin, and nearly an inch in length. The palm of the hands and feet was large, and there were fleshy callosities under all the toes. The tail was covered, for two or three inches from its origin, with hair, and afterwards, to the end, with a smooth scaly skin. The scales were whitish, nearly hexagonal, and regularly placed, so as not to encroach on each other, being all separated by a small circle of skin, which was of a browner colour than the scales. The ears were

D d 2

naked,

naked, thin, and membranous, like the wings of a bat; they were also very open, and the auditory canal was large. The upper jaw was a little longer than the under. The nostrils were large, the eyes small, black, prominent, and lively. The neck was short, the chest broad, and the whiskers like those of the cat. The hair on the fore part of the head was whiter and shorter than that on the body: The back and sides were ash-coloured, mixed with some small tufts of black and whitish hairs; the belly was browner, and the legs more dusky. Under the belly of the female, there was an aperture about two or three inches long, formed by two folds of skin, which composed a pouch thinly covered with hair internally. This pouch contained the teats. The young, as soon as brought forth, go into this pouch in order to suck the mother, and acquire so strong a habit of concealing themselves, that, after arriving at a considerable size, they continue to take refuge in the pouch, whenever they are alarmed. This pouch the animal can open or shut at pleasure, which it performs by means of several muscles, and two bones that are peculiar to the opossum. These two bones are placed before the os pubis, to which they are attached by their base. They are about two inches long, and gradually diminish in thickness from the base to the extremity, and serve as a fulcrum to the muscles which open the pouch. The antagonists of these muscles shut the pouch so close, that, in the living animal,

animal, it cannot be seen, unless when forcibly dilated by the fingers. In the inside of the pouch there is a number of glands, which secrete a yellowish substance of so disagreeable a smell, that it infects the whole body of the animal. This matter, however, when dried, not only loses its disagreeable odour, but acquires a perfume which may be compared to that of musk. The pouch is not, as has been falsely asserted by Marcgrave and Piso, the place where the young are conceived. The female opossum has an internal uterus, which differs, indeed, from that of other animals, but where the young are conceived and retained till the moment of their birth. Tyson * tells us, that, in this animal, there are two uteri, two vaginae, four cornua uteri, four Fallopian tubes, and four ovaria. From the dissections of M. Daubenton, though he agrees not with Tyson in every article, it is certain, that, in the generative parts of the opossum, there are several parts double, which are single in other animals. The glans penis of the male, and the glans clitoridis of the female, are forked, and have the appearance of being double. The vagina, which is single at its entrance, afterwards divides into two canals, &c. This structure is extremely singular, and differs from that of all other quadrupeds.

D d 3

The

* We shall, therefore, here take a survey and an account of these parts; and we find that there are *two* ovaria, *two* tubae Fallopianae, *two* cornua uteri, *two* uteri, and *two* vaginae uteri; Tyson, *anatomy of an opossum*, p. 36.

The opossum is an original native of the warm countries of the New World. He appears not, however, to be so strictly attached to warm climates as the armadillo; for he is found not only in Brasil, Guiana, and Mexico, but likewise in Florida, Virginia *, and other temperate regions of America. He is a very common animal; because the female produces often, and, according to most authors, four or five †, some say six or seven, at a time. Marcgrave assures us, that he has seen six living young in the pouch of the female ‡. These young ones were about two inches long, very agile, and came out and went into the pouch several times a day. When new born, they are very small. According to some travellers, when they escape from the uterus, go into the pouch, and attach themselves to the teats, they exceed not the size of flies §. This fact is not so much exaggerated

* The opossum is common in Virginia and New Spain; *Hist. Nat. des Antilles*, p. 122.

† Quaternos quinosve parit catulos, quos utero conceptos, editosque in lucem, alvi cavitare quadam, dum adhuc parvuli sunt, condit et servat, &c.; *Hernand. Hist. Mex.* p. 330.

‡ Haec ipsa quam describo bestia sex catulos vivos et omnibus membris absolutos, sed sine pilis, in hac bursa habebat, qui etiam hinc inde in ea movebantur; quilibet catulus duos digitos erat longus, &c.; *Marcgrave, Hist. Bras.* p. 222. They have a pouch under the belly, where they carry their young, six or seven of which are brought forth at a litter; *Descript. de Nouv. Monde, par de Laët*, p. 485.

§ The female opossum has a double belly, or rather a pendulous membrane that covers the whole belly, without being fixed

gerated as might naturally be imagined; for we have seen, in an animal whose species has a great affinity to that of the opossum, young attached to the teats, which were not bigger than large beans; and it is probable, that, in this animal, the uterus is only a place destined for the conception and first formation of the foetus, the exclusion of which being earlier than in other quadrupeds, its growth is finished in the pouch, where it enters the moment after its premature birth. No person has ascertained the time of gestation in the female opossum, which is probably much shorter than in any other quadruped: And, as this premature exclusion of the foetus is a singularity of Nature, we must earnestly recommend it to those who have an opportunity of observing the opossum in its native country, to endeavour to discover the time the females go with young, and, after birth, how long the young ones remain attached to the nipples. This last observation is both curious in itself, and may be productive of utility: From it we may perhaps learn some method of preserving

to it, the inside of which may be seen after the animal has once brought forth. At the hinder part of this membrane, there is an aperture, into which the hand may be introduced. It is here where the young retire, either to avoid danger, or for the purposes of sucking and sleeping. In this manner they live till they are able to procure food for themselves. . . . I have seen young ones attached to the teats, when they exceeded not the size of a fly. They never quit the teats till they are as large as mice; *Hist. de la Virginie, p. 229.*

serving the lives of infants who come into the world before the natural period.

That the young opossums, therefore, continue attached, and pasted, as it were, to the teats of the mother, till they acquire strength and growth sufficient to enable them to move about with ease, is a fact no longer to be doubted. Neither is it peculiar to this species, as will appear from the history of the *marmose*, or murine opossum, which is given in the next article. The female of this last species has no pouch under its belly, like the female of the former. It is not, therefore, to the conveniency of a secure retreat, afforded by the pouch, that the effects of adhering long to the teats, and acquiring growth in this immoveable situation, are to be described. I make this remark to prevent the pouch from being regarded as a second uterus, or at least as a shelter indispensably necessary to young which are prematurely brought forth. Some authors mention, that the young remain fixed to the teats for several weeks*. Others say, that they continue in the pouch during the first month of their age only†. It is an easy operation to
open

* The young are attached to the teats, and remain several weeks in this situation, till they acquire strength, the use of their sight, and a proper covering of hair. They then fall into the membrane, from which they go out and return at pleasure; *Hist. de la Virginie*, p. 220.

† Septem plus minusve ut plurimum uno partu excludit foetus, quos donec menstruum aetatem attingant, pro lubitu nunc alvo recondit, nunc iterum prodit; *Ralph. Hamor. apud Nieremberg*, p. 157.

open the pouch of the mother, and to examine and count the young without incommoding them. They never quit the teats, which they hold with their mouths till they have strength enough to walk. They then fall into the pouch; and afterwards go out * in quest of food †. They often return to the pouch to sleep, to suck, and to conceal themselves when danger is apprehended; then the mother flies, carrying her whole offspring along with her. Her belly seems not to be enlarged till long after she has brought forth, and till the young have acquired some bulk; for, during the time of gestation, her size is not perceptibly augmented.

From

* After bringing forth, the mother puts her offspring into the pouch. They instantly fix upon the teats, and continue to feed upon the milk in this secure and warm retreat. . . . As soon as they are able to move about upon the grass, the mother opens her pouch, and allows them to escape, &c.; *Mem. de la Louisiane, par Dumont, p. 84.*

† The mother brings forth her young blind and naked, and with her fore paws puts them into the pouch, which is a kind of uterus, where they find an agreeable warmth, &c. . . . She takes them not out of this pouch till they have the use of their eyes. She then carries them to some rising ground where no danger is to be apprehended; and, having opened her pouch, she makes them come out, exposes them to the rays of the sun, and amuses them by sporting and playing. Upon the smallest noise, or suspicion of danger, she soon recalls them by a cry *tic, tic, tic*, and they run into the pouch for shelter, &c.; *Seba, vol. 1. p. 56.*—When the mother hears any suspicious noise, she gives a signal by a certain cry, which the young understand, run instantly to their protector, and return into the pouch; *Mem. de la Louisiane, p. 83.*

From inspecting the form of the feet, it is easy to perceive, that these animals must walk ill and run slowly. A man, accordingly, it is said, may easily seize them without accelerating his pace*. As a compensation, however, they climb trees with great facility †, and conceal themselves among the leaves, in order to seize birds ‡; or rather they suspend themselves on a branch by the tail, which is so muscular and flexible ||, that it is capable of wrapping round any

* This animal is so slow, that he is very easily taken; *Mem. de la Louisiane, par Dumont, p. 83.* — I never saw any animal move so slowly; for I have often taken one at my ordinary pace; *Du Pratz, Hist. de Louisiane, tom. 2. p. 93.*

† Scandit arbores incredibili pernicitate; *Hist. Mex. p. 330.* — He mounts trees with surprising alacrity; and, like the fox, makes great havock among domestic fowls. He does no other mischief; *De Laët, p. 143* — Hoc animal fructibus arborum vescitur. Ideoque non solum ob id arbores scandit, sed etiam cum catulis in crumena inclusis, magna agilitate de arbore in arborem transilit; *Petrus Martyr, Ocean. decad. 1. lib. 9. pag. 21.*

‡ Foetet animal instar vulpis aut martis: Mordax est; vescitur libenter gallinis, quas rapit ut vulpes, et arbores scandendo avibus insidiatur: Vescitur quoque sacchari cannis, quibus sustentavi per quatuor septimanas in cubiculo meo; tandem funi cui alligatum erat se implicans, ex compressione obiit; *Marcgrav. Hist. Bras. pag. 223.*

|| Cauda qua mordicus firmiterque quidquid apprehendit retinet; *Hernand. Hist. Mex. pag. 330.* — His tail is adapted for laying hold of objects: It will, even when seized, wrap round a man's finger. The female, when taken, allows herself, without showing the smallest sign of life, to be suspended by the tail above a fire. The tail adheres of itself; and both the mother and her young thus perish; for no torture is sufficient to make her open her pouch; *Hist. de la Louisiane, par M. le Page du Pratz, tom. 2. p. 94.*

any thing it seizes more than once. In this situation, with his body suspended, and his head hanging downwards, he will remain very long, waiting for the approach of small birds *. At other times, he leaps from one tree to another, nearly in the same manner as the monkeys with prehensile tails, whom he also resembles in the structure of his feet. Though carnivorous, and even greedy of blood, he eats reptiles, insects, sugar canes, potatoes, roots, and the leaves and bark of trees †. He might easily be reared as a domestic animal ‡; for he is neither mischievous

* He is very fond of birds and poultry; and, accordingly, he enters boldly into the court-yards and hen-houses. He even goes into the fields to eat the mahi which is sown there. The instinct with which he hunts his prey is extremely singular. After killing a small bird, he does not eat it immediately, but lays it down, in an exposed situation, near a tree. He then mounts the tree, suspends himself by the tail on a branch which is nearest to the bird, and waits patiently till some carnivorous bird comes to carry it off, upon which he instantly darts, and makes a prey of both; *Mem. de la Louisiane, par Dumont, p. 84.*—He hunts during the night; and wages war against the poultry, whose blood he sucks, but does not eat the flesh; *Hist. de la Louisiane, par M. le Page du Pratz, p. 93.*

† Vescitur cohortalibus quas vulpecularum mustelarumve sylvestrum more jugulat, illarum sanguinem absorbens, caetera innoxium ac simplicissimum animal. . . . Pascitur etiam fructibus, pane, oleribus, frumentaceis, aliisque, veluti nos experimento cognovimus, alentes istud domi, ac in deliciis habentes; *Hernand. Hist. Mex. pag. 330.*—He climbs trees with great alacrity, and feeds upon birds. Like the fox, he preys upon poultry; but, when prey of this kind fails him, he eats fruits; *Hist. des Antilles, p. 121.*

‡ Visitat carnibus et fructibus, herbis et pane; idioque a multis animi gratia domi nutritur; *Marcgrav. Hist. Brasil. p. 222.*

vous nor ferocious, and is easily tamed. But he disgusts by his smell, which is ranker than that of a fox *. His figure is also disagreeable; for his ears resemble those of the ounce, his tail is like a serpent, his mouth stretches near to his eyes, and his body has always a dirty appearance; because his hair, which is neither smooth nor curled, seems as if it were covered with dung †. The offensive odour proceeds from his skin; for his flesh is not bad ‡. He is one of

* The opossum resembles the Spanish fox; but he is smaller, and has a more unsupportable smell; *Descript. des Indes Occidentales, par de Laët, p. 85.*

† They have a hideous aspect, and seem always to be covered with dung; *Mem. de la Louisiane, par Dumont, p. 83.*—Their hair is gray, and, though fine, it is never smooth. The female natives spin it, and make garters of it, which they afterwards dye red; *Hist. de la Louisiane, par M. le Page du Pratz, tom. 2. p. 94.*

‡ Testatur ipse Raphe comedisse hoc animal, et esse grati et salubris nutrimenti; *Nieremberg, Hist. Nat. Peregrin. pag. 157.*—Carnibus hujus animalis non solum Indi libentissime vescuntur, verum etiam hanc caeterorum animalium quascunque carnes gustu, suavitate nobilitatas, antecellere praedicant. Quapropter legitur in historia Indica, quod habitatores insulae Cubae, observantes magnam horum animalium quantitatem vagantium super arbores secus littora insulae crescentes, clangulum accedentes, et de improvviso, magno impetu arborem excutientes, has belluas cadere in aquam cogunt; tunc innatantes illas apprehendunt, postea in cibos multifarie coquunt; *Aldrov. de quadrup. digit. lib. 2. pag. 225.*—The flesh of the wild rat is very good, having nearly the same taste as that of a pig; *Mem. de la Louisiane, par Dumont, p. 83.*—The flesh of this animal is excellent, and in taste resembles that of a pig; *Hist. de la Louisiane, par M. le Page du Pratz, p. 94.*—The opossum is a stinking animal; but his flesh is very good; *Voyage de Coréal, tom. 1. p. 176.*

Plate CLXL.



VIRGINIAN OPOSSUM.

1847

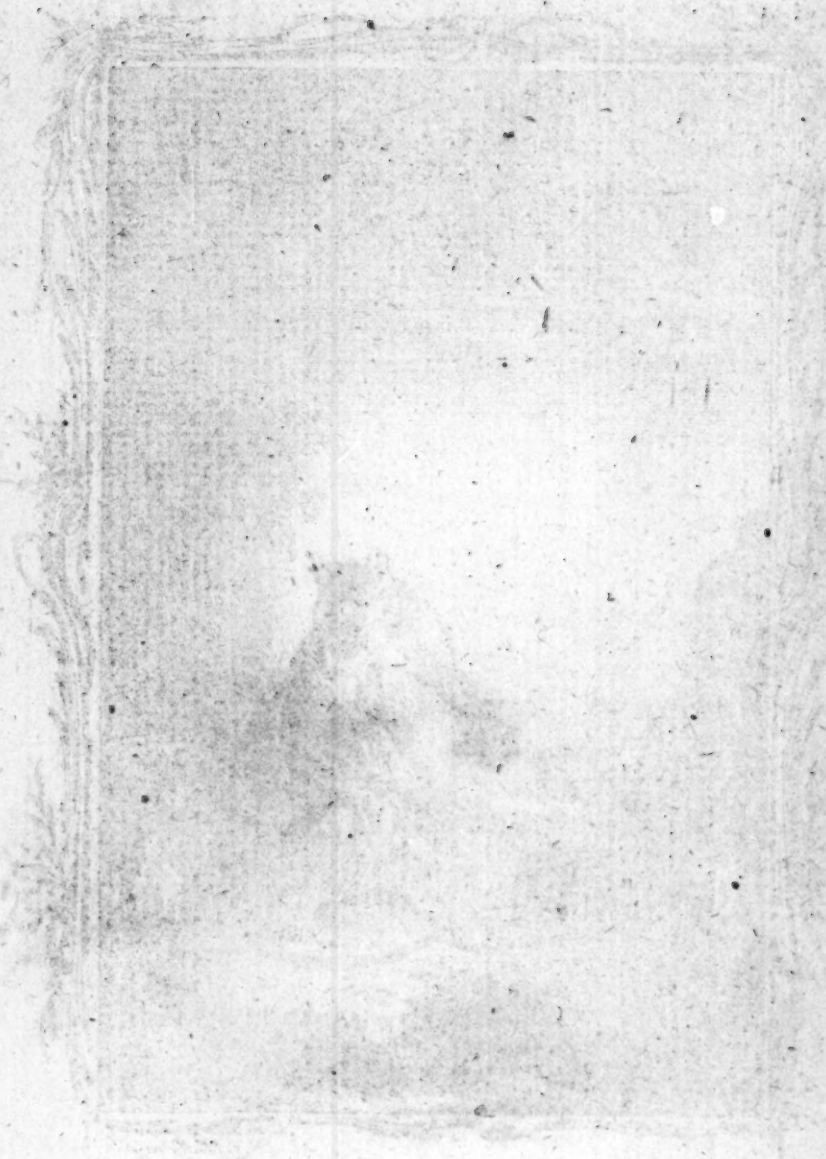


Plate CLXII



FEMALE VIRGINIAN OPOSSUM.

of those animals to which the savages give a preference in their hunting, and whose flesh they eat with pleasure.

S U P P L E M E N T.

M. de la Borde, King's physician at Cayenne, informs me, that he fed three opossums in a small cask, where they suffered themselves to be managed with ease. They eat fish, flesh raw or roasted, bread, biscuit, &c. They licked each other perpetually, and made the same purring noise as cats do when caressed.

' I did not perceive,' says he, ' that they had
' any bad smell. Some species are large and
' others small *. They all carry their young
' in a pouch under their bellies ; and the young
' never quit the teats, even when sleeping. The
' dogs kill, but do not eat these animals. They
' make a kind of grunting noise, which extends
' to no great distance. They are easily tamed.
' They go into the hen-houses and devour the
' fowls. Their flesh is not good to eat : In cer-
' tain

* There was lately sent to the Royal Cabinet, from Cayenne, a skin of one of these small opossums, which, though the animal was an adult, exceeded not three inches and a half in length, and the tail was four inches and a half long.

tain species, its odour is so insupportable, that the animal receives the epithet of *stinking* from the inhabitants of Cayenne.'

These stinking opossums must not be confounded with the true *mouffettes*, or stinking weasels, which constitute a very different genus of animals.

M. de Vosmaër, director of the Prince of Orange's cabinet of Natural History, has added a note to p. 6. of his description of a flying squirrel, published at Amsterdam in the year 1767, in which he says,

'The *coescoes* is the *bosch* or *beufruit* of the East Indies, the *philander* of Seba, and the *didelphis* of Linnaeus. The learned M. de Buffon (see above, p. 407.) denies absolutely its existence in the East Indies, and limits it entirely to the New World. We can, however, assure this learned naturalist, that Valentin and Seba were right in making these animals common to Asia and America. Last summer, I myself received a male and female from the East Indies. The same species has likewise been transmitted from Amboina to Doctor Schlosser of Amsterdam. The chief difference between the *coescoes* of the East and that of the West Indies, consists, according to my observation, in the colour of the hair, which, in the East India male, is all of a yellowish white: That of the female is a little browner, with a black, or rather brown line on the back. The head
' of

‘ of the West India kind is shorter ; but the head
 ‘ of the male appears to be longer than that of
 ‘ the female. The ears of the East are much
 ‘ shorter than those of the West India species.
 ‘ The description of the second species, mention-
 ‘ ed by Valentin, is too diffuse to afford any
 ‘ certain information.’

That M. Vosmaër received male and female animals from the East Indies, under the denomination of *coescoes*, I have no reason to doubt. But the differences which he himself points out between the *coescoes* and the opossums, may lead us to conclude that they are not animals of the same species. I acknowledge, however, that M. de Vosmaër’s criticism is just, when he remarks, that I made Seba’s three philanders the same animal, whilst, in fact, the third, represented in his 39th plate, is a different species, and is found in the Philippine Islands, and, perhaps, in some other parts of the East Indies, where it is known by the name of *coescoes*, *cuscus*, or *cufos*. In the voyage of Christopher Barchewitz, I find the following notice :

‘ In the island of Lethy, there are *cuscus* or
 ‘ *cufcos*, whose flesh has nearly the taste of that of
 ‘ a rabbit. In colour they resemble the marmot.
 ‘ The eyes are small, round, and brilliant. The
 ‘ legs are short ; and the tail, which is long,
 ‘ has no hair on it. This animal leaps from one
 ‘ tree to another, like the squirrel, and then fixes
 ‘ its tail round a branch, that it may eat the fruit
 ‘ more commodiously. It diffuses a disagree-
 ‘ able

'able odour, like that of the fox. The female
'has a pouch under the belly, into which her
'young go out and in below her tail. She leaps
'from one tree to another, conveying her
'young in this pouch *.'

From the pouch under the belly, and the prehensile tail, it appears, that the cuscus or cufos of the East Indies is really an animal of the same genus with the American opossum. But this is by no means a proof that it belongs to the same species with any of those which inhabit America. This would be the only example of such a coincidence. If M. Vosmaër had engraved the figures of these coescos, as he mentions in the text, we would have been enabled to form a more complete notion of the similarities and differences which subsist between the Asiatic coescos and the American opossums. But I am still persuaded that those of the one Continent will never be found in the other, unless they are transported thither. I refer the reader to what I have said on this subject in p. 407. of this volume.

We mean not to deny the possibility of equal climates, in both Continents, producing some animals of the precise same species. We formerly remarked, that the same temperature, in different parts of the globe, should produce the same beings, both in the animal and vegetable kingdoms, if all other circumstances were equal. We treat not here, however, of philosophical possibilities, which may be more or less

* Voyage de Barchewitz, p. 532.

less probable, but of a very general fact, of which numberless examples may be given. It is certain, that, when America was discovered, none of the following animals existed in the New World: The elephant, the rhinoceros, the hippopotamus, the camelopard, the camel, the dromedary, the buffalo, the horse, the ass, the lion, the tiger, the apes, the baboons, and a number of others, which I have formerly enumerated, p. 111. of this volume. In the same manner, the tapir, the lama, the pecari, the jaguar, the cougar, the agouti, the paca, the coati, the sloth, and several others formerly mentioned, did not exist in the Old Continent. Is not this multitude of examples sufficient to guard us against pronouncing, like M. Vosmaër, that such and such animals belong equally to the southern regions of both worlds?

The following passage should be referred to the Indian cuscus or cufos:

‘In the Malucca islands,’ Mandelslo remarks, ‘there is an animal called *cufos*, which dwells on trees, and feeds on their fruits. It resembles a rabbit, and has thick, frizzled, coarse hair, of a mixed colour between gray and red. The eyes are round and vivacious, the feet small, and the tail so strong, that the animal hangs by it on the branches, in order the more easily to reach the fruit *.’

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E e

In

* Voyage de Mandelslo, suite d’Olearius, tom. 2. p. 384.

In this passage no mention is made of the pouch under the belly, which is the most distinguishing character of the opossums. But I still maintain, that, if the cufos of the East Indies has this character, it is certainly a species which approaches very near to the American opossums; and I shall be inclined to think that it differs from the opossum nearly in the same manner as the jaguar differs from the leopard. Of all the animals belonging to the southern climates of both Continents, the two last, without being of the same species, make the nearest approach to each other.

The

The MURINE OPOSSUM*.

THIS species seems to make a very near approach to the former. They both belong to the same climate, and to the same Continent. They likewise resemble each other in the

* This opossum has long broad ears, rounded at the end, and thin and naked. The eyes are encompassed with black. The face, head, and upper part of the body, are of a tawny colour, and the belly of a yellowish white. The feet are covered with short whitish hair. The toes are formed like those of the preceding species. The tail is slender, and covered with minute scales to the very rump. The length, from nose to tail, is about six inches and a half, and that of the tail the same. The female wants the pouch or false belly; but, on the lower part, the skin forms on each side a fold, between which the teats are lodged. This species varies in colour. I have seen one from Guiana, which was brown above, and whitish beneath; *Pennant's synops. of quad. p. 207.*

The *marmose*, *marmosa*, is the Brazilian name of this animal. The Negroes call the Virginian opossum *manicou*, and the marmose, which is smaller, the *rat manicou*.

Mus sylvestris Americanus Scalopes dictus; *Seba, tom. 1. p. 46. tab. 31. fig. 1. & 2. Note.* The name *Scalopes*, given by Seba to this animal, and which Klein and Brisson have adopted, is very ill applied. The scalopes of the Greeks is certainly not the marmose of Brasil. Besides, it is impossible to determine, from the writings of the ancients, what animal they meant by the name *scalopes*: *Ad finem, quidam mures sunt quos scalopes vocant, ut Scholiastes Aristophanis in Acharnonsibus animadvertit*; *Aldrov. de quad. digit. vivip. p. 416.* This, I believe, is the only notice we have concerning the

the form of the body, in the structure of the feet, in the *prehensile* tail, which is covered with scales through its whole extent, except at his origin, where it is covered with hair, and in the arrangement of the teeth, which are more numerous than in other quadrupeds *. But the murine opossum is much smaller, and its muzzle is sharper : The female has no pouch under the belly ; there are only two longitudinal folds near the thighs, between which the young attach themselves to the teats. The parts of generation both of the male and female resemble, in their form and position, those of the Virginian opossum. The glans of the male is also forked and placed in the anus ; and this last aperture seems likewise, in the female, to be the orifice of the vagina. The birth of the young, in this species, seems to be still more premature.

When

the scalopes, and it is not sufficient to point out a particular species, and far less can it justify the application of the name to an animal of the New World.

Philander faturatae spadiceus in dorso, in ventre dilute flavus, pedibus albicantibus ; Brisson. quadr. p. 211.

Didelphis murina, cauda semipilosa, mammis senis ; Linn. sist. nat. p. 72. Note 1. That Linnaeus, who places the *murina* immediately after the opossum, asks the question, *An pullus praecedentis ?* This cannot be the case ; for Linnaeus acknowledges that his opossum had a pouch under the belly ; and yet, from Seba's description, it is obvious that the female *murina* has no such pouch : 2. That the character of six teats, which he ascribes to the *marmose*, is by no means constant ; for I have seen one that had *fourteen* teats.

* Both the Virginian opossum and the *marmose* have fifty teeth.

Plate CLXIII.



MURINE OPOSSUM.

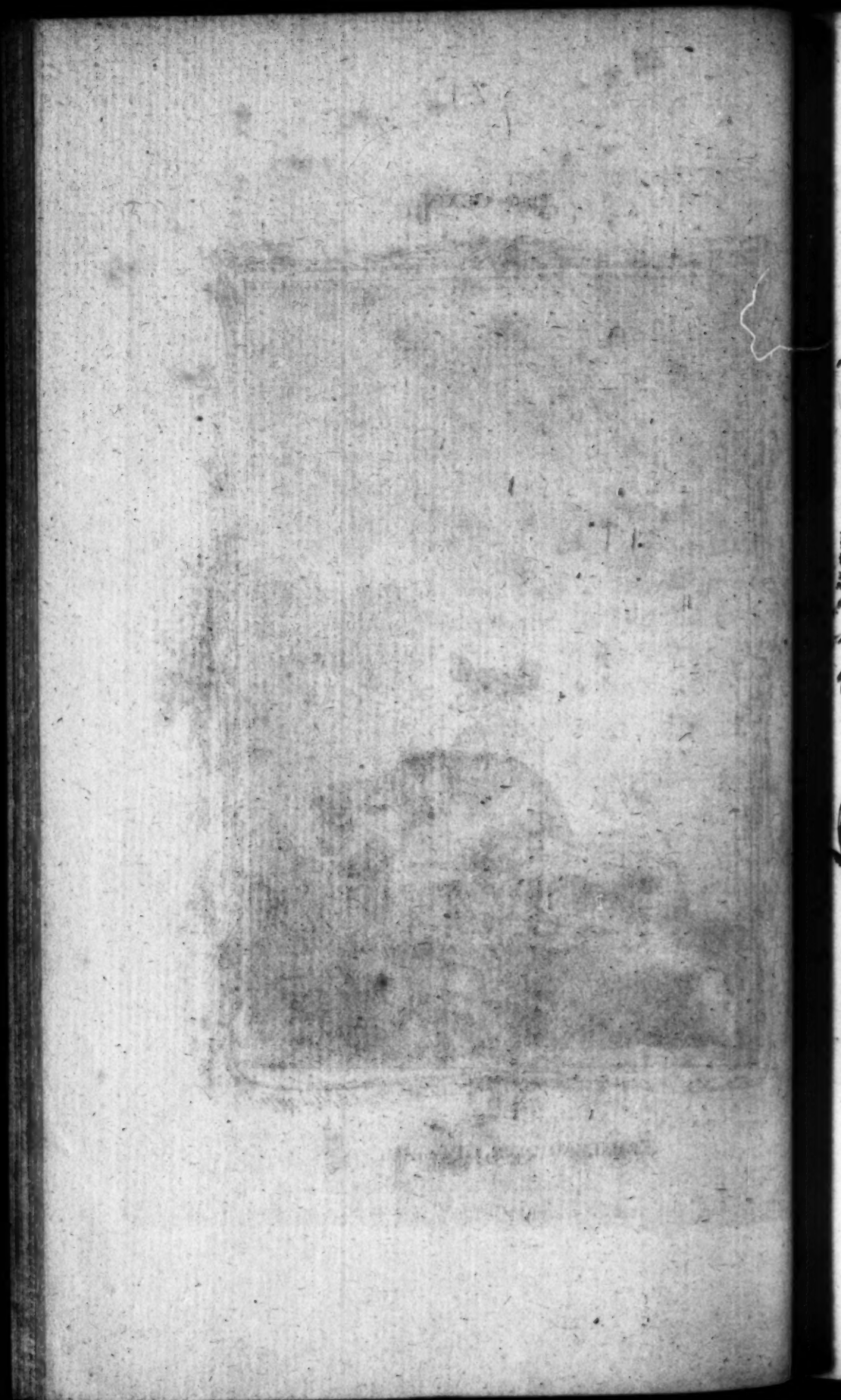


Plate CLXIV.



A. Belli sculpt.

FEMALE MURINE OPOSSUM.

When they are brought forth, and attach themselves to the teats, they are hardly so large as small beans. The litter is also more numerous : I have seen ten young, each of them fixed to a separate teat, and yet the mother had four teats unoccupied ; so that, in all, she had no less than fourteen teats. It is upon females of this species that the observations recommended in the preceding article ought chiefly to be made ; for I am persuaded, that they bring forth a few days after conception, and that the young, at the time of exclusion, are only foetuses, as they exceed not one fourth part of the growth which foetuses generally acquire at that period. The delivery of the mother is always a very early abortion, and the foetuses preserve their lives solely by fixing to the teats, and never quitting their hold, till they attain that degree of strength and growth which they would have naturally acquired in the uterus, if they had not been thus prematurely excluded.

The murine opossum has the same dispositions and manners as the Virginian species. They both dig holes, burrow in the ground, fix themselves to the branches of trees by the extremities of the tail, and dart upon birds and small animals. They likewise eat fruits, grain, and roots. But they prefer fish and crabs, which, it is said, they catch with their tails. This fact is extremely doubtful, and accords not with the natural stupidity ascribed to these animals,

animals, which, according to the testimony of most travellers, can neither move, nor fly, nor defend themselves with any measure of dexterity.

THE MEXICAN OPOSSUM *.

THIS animal was first taken notice of by Fernandes †. The cayopollin, says he, is a small animal, about the size of a rat. It resembles the opossum in the muzzle, the ears, and the tail, which last it uses as a hand. The ears are thin

* This animal has large, angular, transparent ears. Its nose is thicker than that of the former kind. There is a slight border of black round the eyes. The hairs on the head and upper part of the body are ash-coloured at the roots, and tawny at the tips. The belly and legs are whitish. The tail is long, pretty thick, varied with brown and yellow, hairy near an inch from its origin, and the rest is naked. The length, from nose to tail, is about seven inches and a half, and that of the tail more than eleven; *Pennant's synops. of quad. p. 208.*

Cayopollin, or Kayopolin; *Fernandes, hist. Nov. Hisp. p. 10.*
Animal caudinarum seu coyopollin; *Nieremberg, hist. nat. peregrin. p. 158.*

Mus Indicus dictus coyopallin; Charleton, exercit. p. 25.

Mus Africanus Kayopollin dictus; Seba, tom. 1. p. 39. tab. 31. fig. 3. Note. This is an American, not an African animal.

Philander saturate spadiceus in dorso, in ventre ex albo flavicans, cauda ex saturate spadiceo maculata; Brisson. quad. p. 212.

† Franc. Fernandes, *Hist. quad. Nov. Hisp. p. 10.*

thin and transparent. The legs and feet are white. The young, when frightened, lay fast hold of the mother, who carries them up to the nearest tree. This species is found in the mountains of New Spain. Nieremberg * has copied these remarks verbatim, without adding any of his own. Seba †, who first gave a figure of this animal, has not described it. He only says, that its head is somewhat thicker, and its tail larger than those of the marmose or murine opossum, and that, though it be of the same genus, it belongs to a different climate, and even to a different continent. He then refers to Nieremberg and Johnston for farther information concerning this animal. But it is evident, that neither Nieremberg nor Johnston had ever seen it; for they only follow Fernandes. None of these three authors say that it is a native of Africa. They mention it, on the contrary, as peculiar to the mountains of the warm regions of America; and yet Seba, without the smallest authority, pretends that it is an African animal. That which we saw unquestionably came from America. It was larger, the muzzle was not so sharp, and the tail was longer than those of the murine opossum, and in every particular it approached nearer than the latter to the Virginian opossum. These three animals have a great resemblance in their external

* Euf. Nieremberg, hist. nat. peregrin. p. 158.

† Seba, tom. 1. p. 49. tab. 31. fig. 3.

nal and internal structure, in the supernumerary bones of the pelvis, in the form of the feet, in their premature birth, in their long and constant adherence to the teats, and in their manners and dispositions. They all belong to the same climate of the New world. They are never found in the cold regions of America, and cannot live even in temperate climates. Besides, they have all an ugly aspect. Their mouth, which is split like that of a pike, their ears, which resemble those of a bat, their serpent-like tail, and their feet, shaped like those of a monkey, exhibit a strange picture, which is rendered still more disagreeable by their offensive smell, and by the slowness and stupidity that accompany all their actions and movements.

END OF VOLUME FIFTH.



MEXICAN OPOSSUM.

